

THE REVIEW

DEVOTED TO THE INTERESTS OF THE AMERICAN SOCIETY FOR METALS

Volume IX

SEPTEMBER, 1936

No. 5

A.S.M. to Have Symposium on Metal Working

Many Other Subjects and Events Scheduled During National Metal Congress

The Campbell Memorial Lecture, to be presented by James P. Gill, and a two-day Symposium on the Plastic Working of Metals are only two of the important events scheduled on the technical program of the American Society for Metals during the National Metal Congress and Exposition meeting in Cleveland, Oct. 19 to 23.

More than fifty papers will be presented during the twelve technical sessions to be held each morning and afternoon during the week of the Congress. Morning sessions will be in the Statler Hotel Ball Room at 9:30, and afternoon sessions in the Public Auditorium at 2:00 p. m. The Symposium on Plastic Working will be held in a separate room simultaneously with the general technical sessions on Thursday and Friday mornings and afternoons, Oct. 22 and 23.

Two Lecture Courses Planned

Two educational lecture courses on "Physical Testing" and "X-Ray Analysis" respectively, are planned for members of the Society. Further details of these lectures will be found on pages 2 and 3, and a complete program of papers for the technical sessions is shown on page 4.

On Wednesday morning at 9:30 the members of the American Society for Metals will gather for the Annual Meeting, at which officers are installed and reports of Society activities presented.

Gill is Campbell Lecturer

Following the meeting, James P. Gill, metallurgist, Vanadium-Alloys Steel Co., Latrobe, Pa., will present the Edward de Mille Campbell Memorial Lecture, the subject of which has not yet been announced.

Each morning during the convention the authors of papers to be presented will meet at breakfast with the chair-

(Continued on page 8)

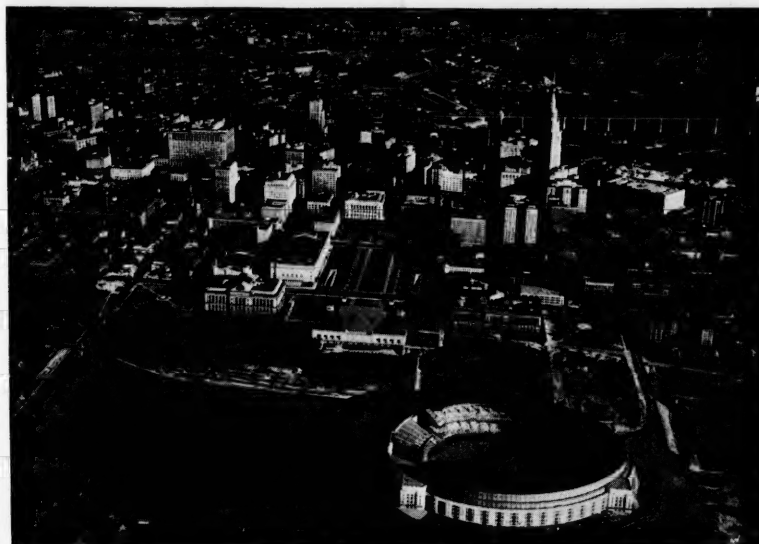
Secretaries Are Honored For Long-Time Service

Secretaries of six chapters of the A.S.M. who have served in that capacity for ten years or longer will be guests of the Society at the National Metal Congress in Cleveland, Oct. 19 to 23, according to action of the Board of Trustees.

This is in recognition of their loyal and enthusiastic service over a period of years. The secretaries so honored will also be guests of honor at the annual banquet of the Society and will sit at the speakers' table.

They are H. E. Handy, secretary of the Boston Chapter; T. N. Holden, New York Chapter; Alexis Caswell, North West Chapter; H. L. Walker, Pittsburgh Chapter; Carl G. Peterson, Rhode Island Chapter; and Irving C. Matthews, Rochester Chapter.

Metal Show Opens in Cleveland Oct. 19



Airplane View of Cleveland—Industrial Center

A Message From the President

To the Members of the American Society for Metals and Members Of the Cooperating Societies in the National Metal Congress

Thomas Edison once said that the most valuable part of his knowledge was his knowledge of things that wouldn't work. We realize, of course, that his reason for attaching so much value to such knowledge was because it helped him to arrive more quickly at things that would work—and we know he did arrive at plenty of things that work very well indeed.



R. S. Archer

Don't we all feel that money is being wasted that won't work, things that someone else has already given a thorough trial? We seldom read about failures; it is the successes that are written up. But we can learn about these things that didn't work by talking with other men engaged in efforts similar to our own. Sometimes we also find that conditions are a little different, or that new materials and equipment are available, so that something which has failed in the past may now have a better chance of success.

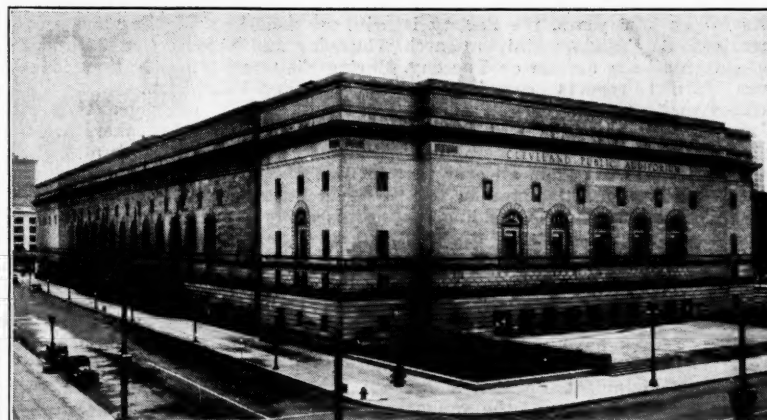
At the National Metal Congress and Exposition in Cleveland the week of Oct. 19, 1936, men in the metal industries will have the best opportunity of the year to mingle and exchange information about failures (which few men are willing to write about) and successes (which busy men often do not have time to write about). And in addition there will be an unusually fine program of technical papers that busy and capable men have taken time to prepare for us. I feel that I would be remiss in my duty to all concerned if I did not take this opportunity to urge you to attend the convention and the exposition.

The dovetailed programs of all of the societies will provide you with informational facilities during the five-day period that would require weeks of your time if the conventions were held at separate times. Your attendance at the Metal Congress will provide not only a conservation of your time and energy, but will give you, at one time and in one place, a review of what is new in the metal world and a forward-looking view of what we may expect in the future.

September 14, 1936

R. S. Archer.

Public Auditorium—Scene of Exposition



Cleveland's Public Auditorium Will House over 217 Exhibits of Products, Processes and Equipment Sponsored by the Leading Firms in the Metal Industry

Exposition Is Focal Point of Metals Week

Show Opens Oct. 19 in Cleveland; Will Cover Four Acres

Focal point of the National Metal Congress opening in Cleveland Oct. 19 will be the National Metal Exposition, a mammoth show covering four acres of exhibit space in Cleveland's Public Hall, a building well known for its unrivaled exposition facilities.

The Exposition, sometimes known as the "working laboratory" of the Metal Congress, will provide an opportunity for executives and engineers to study and compare the new products, processes, and equipment being discussed in the technical sessions of the Congress. The 217 firms that already have exhibit space are listed on page 10, along with a brief indication of what they will have to show the metal world.

The Metal Exposition will be open every day from Monday to Friday, Oct. 19 to 23, from 12:00 noon to 10:00 p. m., except Thursday, when it will close at 6:00 p. m. It is held under the auspices of the American Society for Metals and will be directed by W. H. Eisenman, secretary.

All members of the five societies cooperating in the Congress—the American Society for Metals, the Iron and Steel and Institute of Metals Divisions of the American Institute of Mining and Metallurgical Engineers, the American Welding Society, the American Society of Mechanical Engineers, and the Wire Association—and also members of other

Bring Your Membership Card

Members of the A.S.M., A.I.M.E., A.W.S., A.S.M.E., the Wire Association, or any other technical society should be sure to bring their membership cards to the National Metal Congress in Cleveland, Oct. 19 to 23. Membership cards are required for admission to the National Metal Exposition and for enrollment in the lecture course.

technical societies, will be permitted to register for the Exposition upon presentation of their membership cards. Registration is free and provides admission to the Exposition for the week of its duration.

Non-members of technical societies, upon payment of 50 cents, will receive a badge good for the entire week. A limited number of engraved invitations is also being distributed by the exhibiting firms, but no free tickets will be available.

CONGRESS NEWS

A.I.M.E. Program	Page 2 and 4
A.S.M. Program	1 and 4
A.S.M.E. Program	2 and 12
A.W.S. Program	2 and 12
Alumni Luncheons	3
Banquet	3
Canadian Luncheon	11
Cleveland Hosts	7
Exhibitors	10
Golf Facilities	11
Ladies' Entertainment	3
Lecture Courses	2 and 3
Plant Trips	3
Wire Association Program	2 and 5

THE REVIEW

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RAY T. BAYLESS.....*Editor*
 M. R. HYSLOP.....*Managing Editor*

Cleveland, O., September, 1936
 Volume IX No. 5

A CONVENTION IS BORN!

ON OCTOBER 19 the Eighteenth National Metal Congress opens in Cleveland. Thousands of metallurgists, research men, plant superintendents, engineers and executives will gather from all over the world. For a week they will listen to technical papers—nearly 150 of them—and see exhibits of the latest developments in modern equipment, products and processes in a huge exposition.

The result is obvious; the proverbial wheels of progress turn another notch. But what of the machinery behind it?

A year before the convention opens the board of trustees of the A.S.M. confers with the cooperating societies to secure their reactions to the various convention cities under consideration.

The location of the annual convention has become somewhat standardized inasmuch as it is usually held in the east, the central east, and the west (Chicago) in rotation. Due to the size and scope of the Metal Congress and Exposition, only the largest cities of the country are able to give satisfactory accommodations.

Secretary W. H. Eisenman interviews city officials and carefully investigates the possibilities of each. The location must be right and timely; facilities for the exposition must be available; a thousand details must be considered before the final selection is made.

Then come weeks of conferences with the managers of the exposition hall. Electricity, gas, and water must be provided in capacities sufficient to run the huge furnaces and machinery to be displayed. Booths are laid out in such a manner as to accommodate all to the best advantage. A floor plan is drawn up, printed and distributed to all those firms who have something new to show the metal world.

History of a Technical Paper

BUT LONG before the city is selected—years before perhaps—a research worker in a laboratory gets an idea. He elaborates it, makes countless experiments, meets disheartening failure, but keeps steadily on and finally the idea he visualized begins to take form. A new viewpoint on an old subject, a slight improvement in an existing process, perhaps even a new process or product—but something his colleagues should know about. He writes a paper.

In the meantime in the National Office of the American Society for Metals Ray T. Bayless and his Publication Committee are watching new developments, canvassing the field continually for worth-while papers. Many are received, each one of which is sent to

three members of the Committee for review before it is decided that it contains enough new information to be worthy of presentation.

After acceptance each paper must be set in type; some 1000 pages must be edited and proofread before preprints can be published and circulated among those interested. Written discussions from experts on each subject are solicited.

At the same time a similar process goes on in the four other technical societies cooperating in the Congress.

Each society must have proper hotel headquarters. Meeting rooms for the technical sessions have to be provided, with facilities for lantern slide projectors, motion pictures, amplifying instruments, and stenographic reports of the discussions.

Ingredients of an Exposition

WORK ON the exposition, meanwhile, does not end with circularization of floor plans. Countless details are taken care of in the A.S.M. office and each exhibitor is given individual attention. Decorations and furniture, janitor service, electrical connections, telephone service are all arranged under Mr. Eisenman's direction. Admission passes and programs are printed; shipping instructions sent to the exhibitors.

Nor is the less serious side of the week's activities overlooked. Entertainment is provided for the ladies as well as for the men. Arrangements are made with leading local plants for inspection trips. A banquet hall is reserved and a high-caliber speaker secured. Even the menu is given thoughtful attention.

And so on the appointed day the Congress opens and for a week it functions smoothly and efficiently. And once more the American Society for Metals has contributed its bit to the forward march of metal progress.

Research Session On Program of Welding Society

In conjunction with the National Metal Congress and Exposition in Cleveland, the American Welding Society has arranged an unusually fine program for the week of Oct. 19.

The Society's headquarters during the convention will be at Hotel Cleveland. Members and guests are requested to register, either at the Hotel or at the Public Auditorium, immediately upon arrival.

The week's activities will open with a business meeting on Monday morning, Oct. 19. Technical sessions will start Monday afternoon and continue throughout the week. A complete program listing the papers to be presented will be found on page 12.

As in previous years, the Society is featuring its fundamental research work in an all-day session on Tuesday. Seven formal reports covering researches under way in various universities will be presented. On Tuesday evening there is to be a general conference of professors from all over the country engaged or interested in fundamental research work in welding.

Another unusual feature of this meeting is the joint Welding Practice Symposium on Thursday and Friday with several divisions of the American Society of Mechanical Engineers.

Social features have not been neglected. There will be special provision for the entertainment of the ladies throughout the sessions and the annual dinner and dance of the American Welding Society will be held on Thursday evening. Members of the Society will also enjoy the stag party arranged for Wednesday evening.

Two Divisions of A.I.M.E. Join in Congress Doings

Will Sponsor Technical Sessions And Exhibit Booth

The Institute of Metals and Iron and Steel Divisions of the American Institute of Mining and Metallurgical Engineers will hold their fall meetings at Cleveland, Oct. 20 to 22, joining in the National Metal Congress in the observance of Metal Week.

The technical sessions of both divisions of the A. I. M. E. will be held at the headquarters hotel, the Statler, with the exception of the Wednesday afternoon sessions which will be at the Cleveland Public Auditorium, the scene of the National Metal Exposition.

The Iron and Steel Division will have sessions on Blast Furnace Practice, Open-Hearth Steel Plant and X-ray Metallography; the Institute of Metals Division on Aging of Metals and Constitution of Alloy Systems. The two divisions will join in morning and afternoon sessions on Thursday for a Round Table Discussion of Physical Tests and their Significance.

The dinner of the metals divisions will be held at the Statler Hotel on Wednesday evening, Oct. 21. Albert Sauveur will be the principal speaker.

The A. I. M. E. will also sponsor a booth at the National Metal Exposition. There will be an interesting exhibit of metallic minerals, common and rare metals, typical uses of metallic elements and a series of charts illustrating the sources of the more important commercial metals and their flow in world trade. It is designed to typify the scope of A. I. M. E. interests from the location of commercial ore deposits to the use of the refined mineral products in every-day life.

This exhibit has been arranged through the cooperation of a number of metal producing companies, and the Federal Bureaus of Foreign and Domestic Commerce and of Mines.

No Reduced R. R. Rates

Due to the recent reduction of railroad fares in all parts of the country, no reduced fare railroad certificates will be issued to members of the Society attending the National Metal Congress in Cleveland this year.

A. S. M. E. to Participate In Welding Symposium

A Welding Practice Symposium has been arranged by the American Society of Mechanical Engineers in cooperation with the American Welding Society for Thursday and Friday, Oct. 22 and 23, during the week of the National Metal Congress and Exposition.

The A.S.M.E. Divisions that assisted in securing the speakers are the Machine Shop Practice, Iron and Steel, Applied Mechanics, and Petroleum and Process Industries Divisions.

This symposium has been especially arranged to provide mechanical engineers in production and designing work with a series of papers in a compact form that will give them a useful guide on welding practice technique and its effect on design and production. A splendid program has been arranged, with the leading experts in the field preparing papers and giving discussions.

The list of papers and discussions in the symposium is included with the program of the Welding Society on page 12 of this issue.

Van Horn to Give 3-Lecture Course



Kent R. Van Horn

A three-lecture evening course on "X-Ray Analysis" will be presented by Dr. Kent R. Van Horn, research metallurgist, Aluminum Co. of America, as one of the educational features of the National Metal Congress in Cleveland.

These lectures will be held on Monday, Tuesday, and Wednesday, Oct. 19, 20, and 21, at 8:00 p. m. in the Public Auditorium. They are open to anyone attending the Congress.

The subject of the first lecture is "Radiography in Principle and Practice," lecture No. 2 will cover "Principles and Apparatus for X-Ray Diffraction Analysis," and the third lecture will be on "Industrial Applications of X-Ray Diffraction Methods."

A Case graduate in 1926, Dr. Van Horn received his doctor's degree at Yale University. After two years as an instructor at Yale, he came to Aluminum Co. of America as research metallurgist in 1929. He is the author of many technical papers and is a recognized authority on X-ray studies of metals. As chairman of the Cleveland Chapter of the A. S. M. from 1932 to 1934, he contributed largely to the growth and success of that chapter.

Wire Association Begins Activities With Big Meeting

Activities of the Wire Association during National Metal Week in Cleveland will open on Monday morning, Oct. 19, with registration at Hotel Cleveland, Association headquarters for the week, and an informal "get-together." A Directors' meeting and Program Committee meeting are scheduled for 1:00 p. m., and the Annual Meeting of the Wire Association at 3:30 p. m.

Morning and afternoon technical sessions have been arranged for Tuesday, Wednesday, and Thursday, Oct. 20, 21, and 22. Two or three papers will be presented at each of these sessions, and open discussions held. A list of questions will be distributed in advance of each meeting in order to stimulate such discussion.

The subjects to be covered are as follows (see page 5 for complete program):

Tuesday morning—Cleaning, Heat Treating, and Material Handling; Tuesday afternoon—Springs, and Welding Wire; Wednesday morning—Research; Wednesday afternoon—Cold Working of Metal; Thursday morning—Testing Copper Wire, Power Cable, and Power Requirements for Drawing Copper; Thursday afternoon—Dies and Tools.

The informal dinner of the Wire Association will be held Thursday evening at 7:00 p. m. at the Mayfair Casino.

Alumni of Five Colleges Will Meet at Luncheons After Campbell Lecture

Five universities will hold alumni luncheons in Cleveland during the National Metal Congress.

These luncheons will be held on Wednesday, Oct. 21, immediately following the Annual Meeting of the American Society for Metals and the presentation of the Campbell Memorial Lecture. Some of them will be at the Statler Hotel and some will be held at the Cleveland. Cost of the luncheons will be \$1.00 per plate.

The following list gives the universities sponsoring alumni luncheons and the names of representatives to whom advance reservations should be sent:

Carnegie Institute of Technology—R. F. Mehl, head, Department of Metallurgy, Pittsburgh.

Case School of Applied Science—K. H. Donaldson, Department of Mining Engineering, Cleveland.

Lehigh University—Bradley Stoughton, Dean of Engineering, Bethlehem, Pa.

University of Michigan—R. T. Bayless, American Society for Metals, 7016 Euclid Ave., Cleveland.

University of Missouri, School of Mines and Metallurgy—J. F. Helmerichs, Safety Clothing Co., 3804 Payne Ave., Cleveland.

Full details of time and place will be available at the registration desk during the convention and also in the Official Program. Reservations for any of the luncheons will also be taken at the registration desk.

Get Your New Handbook

The new 1936 edition of *National Metals Handbook*, published by the American Society for Metals, is ready for distribution to all members of the Society in good standing.

The value of *Metals Handbook* has greatly increased, for this edition contains 335 articles on a variety of metallurgical subjects, totaling 1540 pages of data and information. This new reference volume is now produced in standard 6x9-in. size, which makes a more convenient and useful Handbook.

To obtain the new edition a member need only return his old copy of the 1933 edition (now obsolete) to the American Society for Metals, 7016 Euclid Ave., Cleveland, Ohio, and a copy of the new 1936 edition will be sent free and postpaid promptly. Non-members may order the book at \$10 per copy.

Prominent Executive Will Address A.S.M. Banquet

Members of the American Society for Metals will gather on Thursday, Oct. 22, for one of the most important events of the year—the Annual Banquet of the Society held at the Statler Hotel in Cleveland during the week of the National Metal Congress.

Principal speaker at the Banquet will be a leading executive in the steel industry. Also at the speakers' table, as guests of the officers and trustees of the Society, will be six members who have served as chapter secretaries for a period of ten years or longer.

Award of the Albert Sauveur Achievement Medal and the Past-President's Medal will also be made during the Banquet.

Tickets for the Banquet will be \$3.50 and may be secured at the Statler or Public Auditorium headquarters. Advance reservations should be sent to the American Society for Metals, 7016 Euclid Ave., Cleveland. Tables will seat ten.

Cleveland Firms to Welcome Visitors

Inspection Trips Being Planned To Many Large Plants

Tentative arrangements have been made with a large number of Cleveland firms for plant inspection trips during the National Metal Congress.

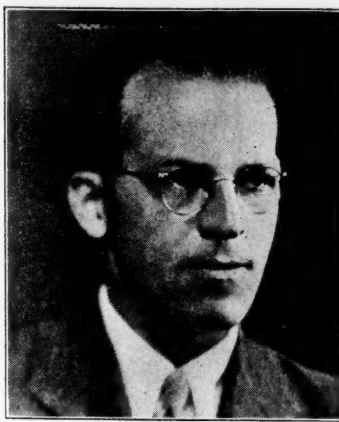
Organized trips will be planned for Tuesday, Wednesday, Thursday, and Friday mornings, Oct. 20, 21, 22, and 23. A definite schedule of these trips will be available at the registration desks at the Statler Hotel and the Public Auditorium, and will be printed in the Official Program distributed at the convention.

In addition to the scheduled trips a number of firms will be open to individual visitors during the week.

A tentative list of plants that will be open for inspection follows:

Addressograph-Multigraph Corp.
Ajax Mfg. Co.
American Gas Association
Chandler & Price Co.
Chandler Products Corp.
Clark Manufacturing Co.
Cleveland Automatic Machine Co.
Cleveland Electric Illuminating Co.
Cleveland Graphite Bronze Co.
Cleveland Punch & Shear Co.
Cleveland Tractor Co.
Crucible Steel Casting Co.
Drop Dies & Forgings Co.
Eaton Mfg. Co.
Ferro Enamel Corp.
Ferry Cap & Set Screw Co.
Franklin Oil & Gas Co.
Gas Products Co.
General Electric Institute, Nela Park
Grasselli Chemical Co.
Hickok Electrical Instrument Co.
Johnston & Jennings Co.
Lake City Malleable Co.
Lakeside Steel Improvement Co.
Lamson & Sessions Co.
Lester Engineering Co.
Lincoln Electric Co.
Mondie Forge Co.
Monmouth Products Co.
National Acme Co.
National Tool Co.
Nettleton Steel Co.
North American Mfg. Co.
Otis Steel Co.
Geo. H. Porter Steel Treating Co.
Republic Steel Corp.
Scully Steel Products Co.
Steel Improvement & Forge Co.
Una Welding Inc.
Warner & Swasey Co.
White Motor Co.

Convention Lecturer



H. D. Churchill, Professor of Mechanics at Case School of Applied Science, Will Present a Five-Lecture Educational Course on "Physical Testing" During the National Metal Congress in Cleveland.

Varied Events Scheduled For Ladies' Entertainment

A varied program of events has been planned to entertain the ladies who will come to the National Metal Congress and Exposition in Cleveland the week of Oct. 19.

Those who wish to attend the following interesting events may register at the Statler Hotel, Rooms 1, 2 and 3 on the Mezzanine Floor. A registration fee of \$3.00 will be charged to cover partially the expense of these activities.

Monday, Oct. 19

1:00 p.m.—Luncheon at Hotel Statler, followed by bus ride through eastern part of the city, past Art Museum, Severance Hall, Lake Erie, through Bratenahl, across Eddy Rd. to Country Club, and back through Shaker Heights and Shaker Square.

Tuesday, Oct. 20

Buses leave Hotel Statler for tour of other parts of the city ending at General Electric Institute, Nela Park, at 1:30 p.m. for luncheon, tour of inspection and explanation.

Wednesday, Oct. 21

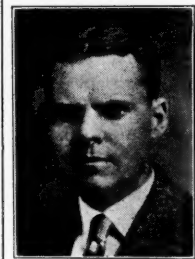
2:30 p.m.—Matinee at the Play House, "Merrily We Roll Along."

Thursday, Oct. 22

11:00 a.m.—"Brunch" at Halle Bros. Tea Room. Tour of store and style show. Visit to radio broadcasting studio WTAM and Terminal Bldg. Observation Tower.

Nationally Known Tool Steel Authority To Present Campbell Memorial Lecture

James P. Gill, metallurgist, Vanadium-Alloys Steel Co., Latrobe, Pa., will present the Edward de Mille Campbell Memorial Lecture to the members of the American Society for Metals on Wednesday morning, Oct. 21, during the week of the National Metal Congress and Exposition in Cleveland.



J. P. Gill

Mr. Gill, whose subject has not yet been announced, is well known as an authority on tool steels. He presented an educational course of five lectures on this subject at the National Metal Congress in 1934, and is the author of numerous technical papers.

He was educated at University of Missouri School of Mines and Metal-

lurgy and at Columbia University, and has the degrees of bachelor of science, master of science and metallurgical engineer. He has been metallurgist for Vanadium-Alloys Steel Co. since 1920 and is also serving at the present time as chief metallurgist for that company's subsidiaries, the Anchor Drawn Steel Co. and Colonial Steel Co.

Churchill Will Give Lectures At Convention

Testing Is Subject of Series of Free Educational Lectures

An outstanding attraction of the National Metal Congress and Exposition is the free five-lecture educational course inaugurated two years ago. The lecturer this year at the Convention in Cleveland will be Harry D. Churchill, associate professor of mechanics at Case School of Applied Science. "Physical Testing" is the subject of this course, which will be similar in nature to those presented by James P. Gill on "Tool Steels" in 1934 and by Marcus A. Grossmann on "Principles of Heat Treatment" in 1935.

The lectures will be presented each day during the Congress (Monday to Friday, Oct. 19 to 23) at 4:30 p. m. in the Public Auditorium.

Course Offered Without Cost

The course is offered without cost to members of the American Society for Metals in good standing. Advance enrollment using the coupon below is urged, although registrations will be taken at the Statler Hotel and Public Auditorium until noon on Monday, Oct. 19. Registration at the Exposition is made on presentation of A. S. M. membership cards. Members not wishing to attend all lectures may enroll for individual lectures on Monday.

The course is to consist of a discussion of fundamental principles and the application and interpretation of the various tests. Following is a brief outline of the lectures:

Lecture 1

INTRODUCTION

Short historical sketch of physical testing; Definition of physical testing; Interpretation and use of results; Accuracy of results; Simulation of service conditions.

TENSION AND COMPRESSION

Standard tests; Definitions and meaning of the physical constants determined by these tests; Changes in method needed for compression tests; Effect of speed of testing; Effect of size and shape of specimens on results; Types of fracture.

Lecture 2

SHEAR AND BENDING

Methods of determining shearing strengths; Relation of shear to tensile and compressive strength; Limitation of our shear formula to circular sections; Bending tests.

Lecture 3

HARDNESS AND IMPACT

Types of hardness testing machines and methods of determining hardness; Correlation of hardness with other physical characteristics; Determination of hardness; Correlation of hardness values obtained by different methods; Caution in use of hardness values; Absurd hardness specifications; Impact testing machines.

Lecture 4

FATIGUE TESTING

Types of fatigue tests; S-N diagrams; Correlation of results of fatigue tests with other physical constants; Preparation of the specimens; Use of results of fatigue tests in design; Impact torsion.

Lecture 5

SPECIAL TESTS

Vibration; High and low temperature tests; Creep tests; Abrasion tests; Cupping tests; Damping tests; Large testing machines and large size specimens; Proper test for desired results.

ADVANCE ENROLLMENT BLANK Course on "Physical Testing"

Forward to American Society for Metals, 7016 Euclid Ave., Cleveland, Ohio.

☐ I am a member of the.....Chapter of the AMERICAN SOCIETY FOR METALS.

☐ I plan to become a member of the.....Chapter and would appreciate receiving application blank.

Please enroll me for the series of five lectures on "PHYSICAL TESTING" to be given by H. D. Churchill during the National Metal Congress & Exposition in Cleveland, Oct. 19, 20, 21, 22, 23, 1936.

My Name

My Address

Technical Programs of Five Societies at Congress

Papers to Be Presented by American Society for Metals, American Institute of Mining and Metallurgical Engineers, Wire Association, American Welding Society, and American Society of Mechanical Engineers at National Metal Congress, Cleveland, Oct. 19 to 23

American Society for Metals

Monday, Oct. 19

10:00 a. m.—Statler Hotel Ball Room
THE RETARDING EFFECT OF CERTAIN METALLIC ELEMENTS ON GRAPHITIZATION, by H. A. Schwartz, H. H. Johnson and C. H. Junge, National Malleable and Steel Castings Co.
CADMIUM ALLOYS FOR BEARINGS, by C. F. Smart, Pontiac Motor Co.
HIGH SPEED MOTION PICTURE SHOWING BEHAVIOR OF QUENCHING MEDIUMS DURING QUENCHING, by I. N. Zavarine, Massachusetts Institute of Technology.
DIFFUSION OF HYDROGEN THROUGH NICKEL AND IRON, by W. R. Ham, Pennsylvania State College.

2:00 p. m.—Public Auditorium
NOTES ON CONTINUOUS GAS CARBURIZING, by R. J. Cowan, Surface Combustion Corp.
DIFFERENTIAL HARDENING BY INDUCTION, by M. A. Tran, The Park Drop Forge Co., and W. E. Benninghoff, Ohio Crankshaft Co.
THE CONTINUOUS HEAT TREATMENT OF COLD ROLLED STRIP, by N. P. Goss, Cold Metal Process Co., and T. B. Bechtel, Electric Furnace Co.

Simultaneous Session
THE EFFECT OF TITANIUM ON SOME CAST FERROUS AND NON-FERROUS METALS, by J. A. Duma, Norfolk Navy Yard.
EFFECT OF TITANIUM ON THE HARDNESS AND MICROSTRUCTURE OF HEAT TREATED 18% CHROMIUM STEEL INGOTS, by R. E. Bannon, Titanium Alloy Mfg. Co.
THE PRODUCTION OF FLAKES IN STEEL BY HEATING IN HYDROGEN, by R. E. Cramer, University of Illinois.

4:30 p. m.—Public Auditorium
 Educational Lecture on Physical Testing of Metals, by H. D. Churchill, Case School of Applied Science.

8:00 p. m.—Public Auditorium
 Educational Lecture on X-Ray Analysis, by K. R. Van Horn, Aluminum Co. of America.

Tuesday, Oct. 20

10:00 a. m.—Statler Hotel Ball Room
SOME EFFECTS OF SMALL ADDITIONS OF VANADIUM TO EUTECTOID STEEL, by J. G. Zimmerman, R. H. Aborn and E. C. Bain, United States Steel Corp.
INFLUENCE OF ALUMINUM ON THE NORMALITY OF STEEL, by G. R. Brophy and E. R. Parker, General Electric Co.
A STUDY OF THE EFFECT OF THE ALUMINUM ADDITION ON THE STRUCTURE OF A QUENCHED CARBON STEEL, by H. W. McQuaid, Republic Steel Corp.

2:00 p. m.—Public Auditorium
EFFECT OF OVERLOAD ON THE FATIGUE PROPERTIES OF SEVERAL STEELS AT VARIOUS LOW TEMPERATURES, by H. B. Wishart and S. W. Lyon, University of Illinois.
AUSTENITIC STAINLESS ALLOYS: THEIR PROPERTIES AND CHARACTERISTICS, by V. N. Krivobok, R. A. Lincoln and R. Patterson, Jr., Allegheny Steel Co.
SLIP, TWINNING AND CLEAVAGE IN IRON AND SILICON FERRITE, by C. S. Barrett, G. Ansel and R. F. Mehl, Carnegie Institute of Technology.
DIMENSION CHANGES OF TOOL STEEL DURING QUENCHING AND TEMPERING, by Einar Ameen, Uddeholms A.B., Sweden.

4:30 p. m.—Public Auditorium
 Educational Lecture on Physical Testing of Metals, by H. D. Churchill.

8:00 p. m.—Public Auditorium
 Educational Lecture on X-Ray Analysis, by K. R. Van Horn.

Wednesday, Oct. 21

9:30 a. m.—Statler Hotel Ball Room
Annual Meeting of the American Society for Metals
 Edward De Mille Campbell Memorial Lecture, by J. P. Gill, Vanadium-Alloys Steel Co.

2:00 p. m.—Public Auditorium
MAGNETIC PROPERTIES OF A SERIES OF BASIC OPEN-HEARTH SLAG SAMPLES, by B. A. Rogers and K. O. Stamm, U. S. Bureau of Mines.
BASIC OPEN-HEARTH SLAG CONTROL, by Earnshaw Cook, American Brake Shoe and Foundry Co.
A NEW TOOL FOR THE CONTROL OF QUALITY STEEL MAKING, by G. T. Motok, Republic Steel Corp.

EQUILIBRIUM IN THE REACTION OF HYDROGEN WITH IRON SULPHIDE IN LIQUID IRON AND THE THERMODYNAMICS OF DESULPHURIZATION, by John Chipman, American Rolling Mill Co., and Ta Li, China.

4:30 p. m.—Public Auditorium
 Educational Lecture on Physical Testing of Metals, by H. D. Churchill.

8:00 p. m.—Public Auditorium
 Educational Lecture on X-Ray Analysis, by K. R. Van Horn.

Thursday, Oct. 22

9:30 a. m.—Statler Hotel Ball Room
*Symposium on the Plastic Working of Metals**

Simultaneous Session
X-RAY STUDY OF PREFERRED ORIENTATIONS IN PURE COLD-ROLLED IRON-NICKEL ALLOYS, by D. McLachlan, Jr. and W. P. Davey, Pennsylvania State College.
APPLICATION OF X-RAY DIFFRACTION TO THE STUDY OF FATIGUE IN METALS, by C. S. Barrett, Carnegie Institute of Technology.
X-RAY DIFFRACTION STUDIES OF DISTORTION IN METALS, by G. L. Clark and M. M. Beckwith, University of Illinois.

2:00 p. m.—Public Auditorium
*Symposium on the Plastic Working of Metals**
Simultaneous Session

FURTHER STUDY OF A HIGH CARBON HIGH CHROMIUM TOOL STEEL, by W. H. Wills, Ludlum Steel Co.
IMPORTANCE OF BOUNDARY ATTACK IN THE ETCHING OF STEEL SPECIMENS, by B. L. McCarthy, Wickwire-Spencer Steel Co.
PHYSICAL PROPERTIES OF AXLE SHAFTS, by H. B. Knowlton, International Harvester Co.

4:30 p. m.—Public Auditorium
 Educational Lecture on Physical Testing of Metals, by H. D. Churchill.
 7:00 p. m.—Statler Hotel Ball Room
Annual Banquet of the American Society for Metals

Friday, Oct. 23

10:00 a. m.—Statler Hotel Ball Room
*Symposium on the Plastic Working of Metals**

Simultaneous Session
CONVERSION OF ELONGATION DATA FROM ONE FORM OF TEST PIECE TO ANOTHER, by E. J. Janitzky, Carnegie-Illinois Steel Corp.
BEHAVIOR OF SOME LOW ALLOY STEELS IN THE SINGLE-BLOW DROP TEST, by O. W. Ellis, Ontario Research Foundation.
THE FRACTURE OF CARBON STEEL AT ELEVATED TEMPERATURES, by A. E. White, C. L. Clark, University of Michigan, and R. L. Wilson, Timken Steel and Tube Co.

2:00 p. m.—Statler Hotel Ball Room
*Symposium on the Plastic Working of Metals**
 Statler Hotel

Simultaneous Session
INVESTIGATION OF FATIGUE STRENGTH OF AXLES, PRESS FITS, SURFACE ROLLING, AND EFFECT OF SIZE, by T. V. Buckwalter and O. J. Horger, Timken Roller Bearing Co.
ENDURANCE OF GEAR STEELS AT TWO HUNDRED FIFTY DEGREES FAHR., by A. L. Boegehold, General Motors Corp.
RECOVERY OF COLD WORKED NICKEL AT ELEVATED TEMPERATURES, by Erich Fetz, Wilbur B. Driver Co.

4:30 p. m.—Statler Hotel Ball Room
 Educational Lecture on Physical Testing of Metals, by H. D. Churchill.

*Program of Symposium on the Plastic Working of Metals

LAWS AND FUNDAMENTALS OF PLASTIC DEFORMATION, by A. V. deForest, Magnaflex Corp.
METALLIC SINGLE CRYSTALS AND PLASTIC DEFORMATION, by S. L. Hoyt, A. O. Smith Corp.

CREEP CHARACTERISTICS OF METALS AT ELEVATED TEMPERATURES, by C. L. Clark and A. E. White, University of Michigan.
INTERPRETATION AND USE OF CREEP RESULTS, by J. J. Kanter, Crane Co.
DAMPING CAPACITY: ITS VARIATION AND RELATION TO OTHER PHYSICAL PROPERTIES, by G. R. Brophy and E. R. Parker, General Electric Co.
ELASTIC PROPERTIES AND THEIR RELATIONSHIPS TO STRAIN HARDENING, by M. F. Sayre, Union College.

EFFECT OF THE SHAPE OF THE TEST PIECE UPON THE ENERGY NEEDED TO DEFORM MATERIALS IN THE SINGLE BLOW DROP TEST, by O. W. Ellis, Ontario Research Foundation.

HOT WORKING, COLD WORKING AND RECRYSTALLIZATION STRUCTURE OF METALS, by N. P. Goss, Cold Metal Process Co.
FACTORS RELATING TO THE PRODUCTION OF DROP AND HAMMER FORGINGS, by Adam Steever, Columbia Tool Steel Co.

HOT PRESS AND UPSET FORGING, by J. H. Friedman, National Machinery Co.
EXTRUSION OF METALS, by D. K. Crampton, Chase Brass and Copper Co.
COLD HEADING—BOLTS, RIVETS AND NAILS, by R. H. Smith, Lamson and Sessions Co.

COLD FORMING PROCESSES—DRAWING RODS AND BARS, by J. E. Beck, Jones & Laughlin Steel Corp.
COLD DRAWING PROCESSES: MAKING OF TUBING, by Horace Knerr, Consulting Engineer, Philadelphia.

COLD ROLLING OF MILD STEEL SHEETS AND STRIP, by Anson Hayes and R. S. Burns, American Rolling Mill Co.
SOME FACTORS AFFECTING THE PLASTIC DEFORMATION OF SHEET AND STRIP STEEL AND THEIR RELATION TO THE DEEP DRAWING PROPERTIES, by Joseph Winlock and R. W. E. Leiter, Edward G. Budd Mfg. Co.

COLD WORKING OF HOLLOW CYLINDERS BY AUTO-FRETTAGE, by N. E. Woldman, Eclipse Aviation Corp.

American Institute of Mining and Metallurgical Engineers

Institute of Metals and Iron & Steel Divisions

Monday, Oct. 19

10 a. m. to 5 p. m.—Hotel Statler
Registration

Tuesday, Oct. 20

10:00 a. m.—Hotel Statler
Institute of Metals Division
Aging of Metals

AGING PHENOMENA IN SILVER-COPPER ALLOYS, by Morris Cohen.
AGE HARDENING OF ALUMINUM ALLOYS, by W. L. Fink and Dana Smith.
PRECIPITATION HARDENING AND DOUBLE AGING, by R. H. Harrington.

10:00 a. m.—Hotel Statler
Iron and Steel Division
Blast Furnace Practice

RECOVERY OF FINE FLUE DUST FROM SCRUBBER WATER, by T. B. Counselman.
IMPROVEMENT IN QUALITY OF SOUTHERN PIG IRON, by J. M. Hassler.
BLAST FURNACE OPERATION AND REFRACTORIES, by R. A. Lindgren.
THE CHARACTER OF RAW MATERIALS FOR FRENCH BLAST FURNACES, by Francois Clerf.

Cleveland Hotels Offer Excellent Accommodations for Convention



Above: Scene in Downtown Cleveland at Euclid Avenue and East 9th St.

Left: Terminal Building with Cleveland Hotel at Right, Headquarters for the A.W.S., A.S.M.E. and Wire Association.

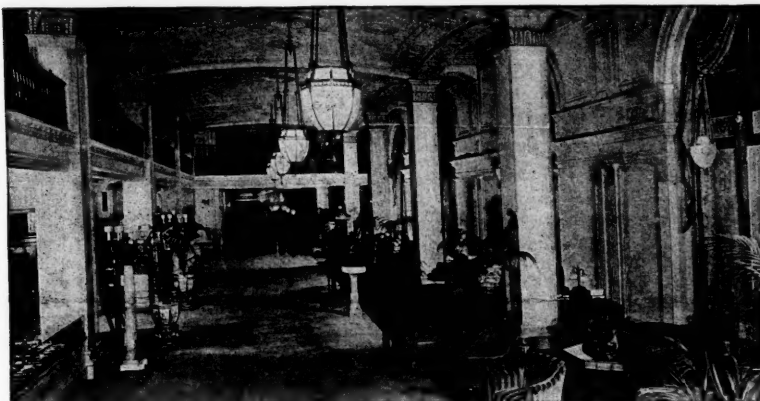


Above: Exterior View of Statler Hotel, Headquarters for A.S.M. and A.I.M.E.



Left: Statler Hotel Ball Room, Where Technical Sessions, Annual Meeting and Banquet of the A.S.M. Will Take Place

Below: Lobby of the Statler Hotel.



A. I. M. E. Program—Continued

Tuesday, Oct. 20

12:15 p. m.—Hotel Statler

Luncheon Meeting, Open Hearth Executive Committee

2:00 p. m.—Hotel Statler

Iron and Steel Division

Open Hearth Steel Plant

FACTORS AFFECTING LIFE OF INGOT MOLDS, by W. J. Reagan.

OPEN HEARTH PRACTICE.

RESUME OF REPORTS OF THE BRITISH HETEROGENEITY COMMITTEE, by R. C. Good.

Wednesday, Oct. 21

12:15 p. m.—Hotel Statler

Luncheon Meeting, Institute of Metals Executive Committee

2 p. m.—Public Auditorium

Institute of Metals Division

Constitution of Alloy Systems

SOLID SOLUBILITY OF THE ELEMENTS OF THE PERIODIC SUB GROUP Vb IN COPPER, by J. C. Mertz and C. H. Mathewson.

EQUILIBRIUM RELATIONS IN THE NI-SN SYSTEMS, by William Mikulas, Lars Thomassen and Clair Upthegrove.

EQUILIBRIUM RELATIONS IN THE AL-MG-ZN SYSTEM, by W. Fink and L. A. Willey.

NOTE ON ETCHING AND MICROSCOPIC IDENTIFICATION OF CONSTITUENTS OF CU-ZN ALLOYS, by J. L. Rodda.

2 p. m.—Public Auditorium

Iron and Steel Division

X-Ray Metallography

PREFERRED ORIENTATION IN HOT-ROLLED LOW CARBON STEEL, by M. Gensamer and P. A. Vukmanic.

PREFERRED ORIENTATIONS PRODUCED BY RECRYSTALLIZING COLD-ROLLED LOW CARBON SHEET STEEL, by M. Gensamer and B. Lustman.

THE PARAMETER OF THE GAMMA IRON LATTICE IN THE STABLE AND META-STABLE SOLUTIONS OF CARBON AT HIGH TEMPERATURE, by C. Nusbaum and H. A. Schwartz.

X-RAY STUDIES OF CONSTITUTION OF Fe-Si, by E. R. Jette and E. S. Greiner.

6:30 p. m.—Hotel Statler

Dinner, Institute of Metals and Iron and Steel Divisions

METALLURGICAL REMINISCENCES, by Albert Sauveur.

Thursday, Oct. 22

9:30 a. m.—Hotel Statler

Iron and Steel and Institute of Metals Divisions
Round-Table Discussion of Physical Tests and Their Significance
Tensile Testing

STRESS-STRAIN RELATIONS, by C. H. Gibbons.

YIELD-TENSILE RATIO, by R. L. Templin, Jonathan Jones, Rudolph Bernhard.

POISSON'S RATIO, by Robert W. Vose.

FATIGUE, by H. F. Moore.

12:15 p. m.—Hotel Statler

Luncheon Meeting, Iron and Steel Division Executive Committee

2:00 p. m.—Hotel Statler

Iron and Steel and Institute of Metals Divisions
Round-Table Discussion of Physical Tests and Their Significance
Impact Testing

TRANSVERSE NOTCHED BAR TEST, by S. L. Hoyt.

TENSION IMPACT, by H. C. Mann.

Bend Testing

GENERAL DISCUSSIONS OF BEND TESTS, by J. R. Townsend.

BEND TESTING AS APPLIED TO WELDS, by Wilber B. Miller.

The Wire Association

Monday, Oct. 19

1:00 p. m.—Hotel Cleveland

Directors' Meeting

Program Committee Meeting

3:30 p. m.—Hotel Cleveland

Annual Meeting of the Wire Association

Tuesday, Oct. 20

9:30 a. m.—Hotel Cleveland

Chairman—Frederick A. Westphal, Superintendent Wire Mills, Sheffield Steel Corp.

CLEANING HOUSES IN THE WIRE INDUSTRY, by A. F. Anjeskey, Cleveland Crane and Engineering Co.

ATMOSPHERES AND FURNACES IN THE WIRE INDUSTRY, by H. M. Heyn, Surface Combustion Corp.

2:00 p. m.—Hotel Cleveland

Chairman—R. B. Whyte, General Superintendent, The MacWhyte Co.

MATERIALS FOR SPRINGS, by J. W. Rockefeller, Jr., Consulting Engineer.

WELDING WIRE, by R. Notvest, J. D. Adams Co.

THE MANUFACTURE OF ENDURO STAINLESS STEEL, Sound Motion Picture.

(Program Continued on page 12)

Free Literature — Mail Coupon Below

Heat Treating Line

An attractive catalog of heat treating products is published by Park Chemical Co. It starts out with a very useful diagrammatic thermometer showing the temperatures and ranges for the various heat treating, melting, and other processes requiring heat. Bulletin Oy-141.

Camera-Microscope

A highly efficient and up-to-date apparatus that is an ingenious combination of several instruments into one universal camera-microscope is described by Pfaltz & Bauer, Inc. in a handsome printed booklet containing some intriguing photomicrographs. Bulletin Oy-142.

Testing Catalog

A loose-leaf binder provides a handy reference catalog of testing machines made by Steel City Testing Laboratories. Universal hydraulic machines, Brinell testers, Bend, Impact, Tensile, and Ductility testers are some of the products. Bulletin Oy-140.

Fans

General Combustion Corp. makes fans designed to operate at temperatures up to 1400° F. for heat interchangers, furnace heat recirculation and similar uses. Described in Bulletin R-159.

Castable Refractory

Properties, method of use, and applications of "Cast-Refract," a time and labor-saving castable refractory made by the Quigley Co., are given in Bulletin Oy-139.

K & S Pyrometer

How it works and why are told in a folder by Industrial Pyrometer Co. describing the K & S optical radiation pyrometer, a simple, low cost, accurate and durable instrument. Bulletin Oy-137.

Port Valves

Diagrams and descriptive matter show the operation of adjustable port valves made by North American Mfg. Co. that are particularly suitable for mediums whose rate of flow is not constant. Bulletin Oy-138.

Stainless for Processing

Authoritative and complete is U. S. Steel Corp.'s well-made brochure on stainless steels for the process industries. Included in the general metallurgical information contained are a complete table of properties of USS stainless steels and a table of resistances to acids and chemicals. Bulletin Oy-79.

Electric Control

A complete new control system for regulating input in proportion to demand is described in "Micromax Electric Control," an illustrated eight-page catalog issued by Leeds & Northrup Co. Bulletin Oy-46.

Gas Carburizing

Surface Combustion Corp. shows how five years of use have proven the Eutectrol process of continuous gas carburizing to give better control of case depth and character, along with large savings in cost. Bulletin Oy-51.

Alloy Castings

Michiana Products Corp. has published a new book describing Michiana corrosion resistant and stainless steel alloys. Generously illustrated, it suggests many savings for the use of these alloys. Bulletin Oy-81.

Salt Bath

"Heating from the inside out" is what makes the Ajax-Hultgren salt bath furnace practical. Ajax Electric Co. explains this new operating principle in an interesting folder. Bulletin Oy-43.

Nichrome

"Nichrome" nickel-chromium resistance alloy is not the only product made by Driver-Harris Co. A new 68-page catalog gives complete data for this well-known material as well as a wide variety of other alloys. Bulletin Oy-19.

Kanthal

Kanthal, an alloy for electric heat developed in Sweden, is now being marketed in the United States by C. O. Jelliff Mfg. Corp. A new catalog gives full information on properties, forms available and fabrication. Bulletin Oy-78.

Insulation

The 1936 edition of the Johns-Manville Industrial Products Catalog is a 60-page book, profusely illustrated, containing a wealth of information and recommendations on insulating materials and a wide variety of related products. Bulletin Oy-100.

Design Chart

Invaluable in the drafting room should be Lincoln Electric Co.'s new Arc Welded Design Chart giving such useful information as weld symbols for working drawings, types of joints for arc welding, nomenclature of welds and much more. It is 24 by 35½ in. and can be attached to the wall. It is available to engineers or men in charge of drafting rooms. Bulletin Oy-10.

Manganese Steel

A whole bookful of useful technical information is packed into a folder by American Manganese Steel Co. entitled "The Story of Manganese Steel." Bulletin Oy-9.

Stainless Tubing

A folder full of helpful technical data on the properties and use of welded stainless steel tubing, a product finding many new applications, is offered by Carpenter Steel Co. Bulletin Oy-12.

Pyrometer Supplies

Claud S. Gordon Co. offers a large catalog giving prices and descriptions of the great variety of pyrometers and pyrometer accessories carried in stock for quick delivery. Bulletin Ob-53.

Rolling Mill Bearings

Timken Roller Bearing Co.'s 64-page, 8½ by 11 in. booklet entitled "The Answer to Rolling Mill Bearing Problems" will appeal strongly to mill designers and operators. It is well printed and liberally illustrated with photographs and diagrams. Bulletin Oy-71.

Pyrometer Set

Filling a long-felt want in certain industries, Pyrometer Instrument Co. has developed a new set of combination surface and needle pyrometers. The indicator and four attachments are described in Bulletin Oy-37.

Duraloy

Duraloy chrome-iron, chrome-nickel and nickel-chrome alloys for resisting temperature, corrosion and abrasion are described in an illustrated pamphlet by the Duraloy Co. A handy table compares the properties and characteristics of the various types. Bulletin R-157.

Beryllium Copper

Beryllium copper has attracted much attention in recent years as a material for high strength and stability. Beryllium Corp. of Pennsylvania now makes it available in the form of heat treated castings. The various types are described in Bulletin R-158.

Useful Wall Chart

Wyckoff Drawn Steel Co. offers a big new wall chart full of such useful data as comparative machinability of S.A.E. steels, tables for selecting steels according to machinability, cold forming properties, carburizing and hardening ability. Bulletin Ox-99.

Electric Brazing

If your product has small parts which are now being torch-brazed, riveted, pinned, or machined from solid stock, you should be interested in the General Electric booklet on electric furnace brazing. Their furnace is continuous and uses an atmosphere of processed city gas. Bulletin Oy-60.

Oils, Compounds

J. W. Kelley Co.'s line of Beacon Brand products—industrial oils, carburizing compounds, heat treating salts, greases, and cleaners—is described in a little booklet which also tells about the company's experience, equipment, and facilities for quick service. Bulletin Ox-102.

Ferro-Alloys

An interesting folder by Electro Metallurgical Co. tells all about their ferro-alloys and their special service to users which will help them to operate their furnaces and make alloy additions under the proper conditions. Bulletin Jya-16.

Chapmanizing

Chapmanizing, the new method of surface hardening steel with nitrogen, is described in a very attractive booklet of Chapman Valve Mfg. Co. Information is given on the method itself and on its metallurgical advantages. Bulletin Ob-80.

Mortars and Plastics

A new eight-page, fully illustrated booklet presenting the general characteristics as well as specific properties of each of the five B&W mortars and plastics is announced by Babcock & Wilcox Co. Bulletin Ay-75.

Wide-Strip Pyrometer

Full details of the many important features incorporated in the Bristol Co.'s new wide-strip potentiometer pyrometer with simplified measuring, self-balancing, and self-standardizing mechanism are contained in Bulletin Jya-87.

Properties of Stainless

Ludlum Steel Co. describes the several analyses of Silchrome corrosion and heat resisting steels in a new data sheet. Physical properties are given for each type, as well as a summary of general characteristics. Bulletin De-94.

Laboratory Furnace

The Sentry Co. describes a high temperature tube combustion furnace. It permits operating temperatures up to 2500° F., thus offering greater speed and precision for combustion analysis or other laboratory procedures. Bulletin Myb-114.

Sheffield Steels

Wm. Jessop & Sons, Inc., have a leaflet which tells why a special anneal and a proper balancing of carbon, manganese and tungsten combine to make Sheffield Superior oil hardening steel non-distorting and easily machinable. Bulletin Jn-61.

Prevention of Rust

"Proof of Results" is the apt title of a new booklet issued by Dearborn Chemical Co. Dozens of photographs, supported by an interesting text, show how No-Ox-Id keeps steel from rusting. Bulletin Mr-36.

Gear Steels

Those who have gear problems of any type can get valuable assistance from Endicott Forging & Mfg. Co., specialists in the manufacture of gear blanks. They carry in stock a large assortment of standard gear analyses and will manufacture to customer's blueprints and specifications. Bulletin Ox-65.

Swedish Tool Steels

"Pure-Ore" is a high carbon, high chromium Swedish steel especially valuable for dies in high production work. It is described in a folder by Kloster Steel Co., which is accompanied by a second folder describing "Swed-Oil," a non-shrinking, oil hardening tool steel which assures safety in hardening. Bulletin Ox-72.

Aluminum Castings

Arthur Seligman & Co.'s booklet on "Aluminum Alloy Castings" contains the latest casting specifications of the Society of Automotive Engineers and the American Society for Testing Materials in condensed form. Bulletin Ox-101.

Alloy Steels

Why alloy steels are best for heavy equipment and other exacting applications is discussed in a folder by Bliss & Laughlin, Inc. A partial list of the more common grades gives machine ratings and turning speeds. Bulletin Jyb-42.

Grinding Lubrication

A handy outline for the selection of grinding wheels is one of the useful features of a booklet full of facts about grinding solutions. D. A. Stuart & Co. Bulletin Mya-118.

Creep Tests

Calorizing Co. offers a report presenting long time high temperature creep values on chromium-nickel alloys. This bulletin contains many pertinent data and recommendations as to safe working stresses for heat enduring castings at temperatures from 1400 to 2000° F. Bulletin Mr-26.

Ultropak

Two booklets are issued by E. Leitz, Inc., one containing description and catalog of their Ultropak microscope equipment, and the other a series of quotations and illustrations from scientists using the method. Get both by asking for Bulletin Ayy-47.

Titanium in Steel

The use of ferro-carbon-titanium in steel is thoroughly described in a booklet of Titanium Alloy Mfg. Co. Titanium's application in forgings, castings, rails, sheets and plates is interestingly explained. Bulletin M-90.

Mo-Cr-Ni Forgings

A real text is presented by A. Finkl & Sons Co. on heat treated molybdenum-chromium-nickel steel forgings for heavy machinery. The illustrations and physical property tables and curves speak for themselves. Bulletin Mya-23.

Liquitol

The use of Liquitol for controlled cooling of iron and steel castings and ingots is fully described in a booklet by Alpha-Lux Co., Inc. Bulletin Mya-120.

X-Rays in Industry

General Electric X-Ray Co. has available a profusely illustrated brochure which gives the complete story of the industrial applications of X-Rays, the modern inspection tool. Bulletin Ma-6.

Stainless Service

Joseph T. Ryerson & Son, Inc., has ten plants handling Allegheny stainless steel and service. A beautiful booklet describing and illustrating in color the products and services available is ready for distribution. Bulletin Jyb-106.

MoTung

An indexed booklet prepared by Universal Steel Co. tells about the new molybdenum-tungsten high speed steel, giving its history, information on working and treatment, surface protection, high heat temperatures, drawing temperatures, effect of treatment, and microstructures. Bulletin Jyb-128.

Heat Resisting Alloy

Ohio Steel Foundry Co. offers an elaborate booklet covering the production of Fabrite heat resisting alloy castings, illustrating their many uses and giving comprehensive metallurgical data. Bulletin Ob-40.

Carburizing Steel

High strength and ductility, forgeability, and machinability combined with superior case carburizing properties permit the attainment of maximum production with minimum cost. Such properties are obtainable in Jones & Laughlin's Jalcas steel. Bulletin Mx-50.

Casting Problems

Unusual casting problems that were solved by the use of National Alloy Steel Co.'s oxidation, corrosion, and abrasion resisting castings are shown in a clever pictorial manner in an attractive folder. Bulletin Ox-104.

Laboratory Furnaces

Tiny induction furnaces which will melt ¼ lb. of steel in 8 min. or 4 lb. of copper in 33 min. find a wide variety of uses in many kinds of laboratories. Ajax Electrothermic Corp. tells all about these small laboratory furnaces and the 3-kw. converter used with them in Bulletin Ox-41.

Conditioned Atmosphere

W. S. Rockwell Co. has issued a folder on their conveyor, belt-type furnace with conditioned atmosphere for handling most metals in bright and scaleless hardening. Advantages are clearly shown. Bulletin Ob-34.

Torsion Impact

Baldwin-Southwark Corp. makes available a folder of technical information on their Carpenter torsion impact testing machine, showing how to operate it and indicating the types of investigation the machine will serve. Bulletin Ob-67.

Accurate Forgings

National Machinery Co. has published a large and very attractive booklet which by excellent illustrations and well written text tells how forging machines are built and why they produce accurate forgings. Bulletin Ob-14.

Boron Carbide

An extremely interesting little booklet describes "the hardest material ever produced by man for commercial use." This is boron carbide, and its manufacture, properties, and uses as an abrasive and as a wear resisting material are told by Norton Co. Bulletin De-88.

High Speed Hardening Furnaces

P. D. M. high speed hardening furnaces are described in two bulletins by The Philadelphia Dry Cleaning Machine Co.—one devoted to oil-fired and one to gas-fired furnaces, both made in single and twin chamber models. Details of construction, design features and tables of sizes and capacities are included. Bulletin Oy-150.

Electroplating

E. I. du Pont de Nemours & Co.'s new manual on the sodium stannate-acetate electroplating process is particularly timely. Electrodeposition, at first considered useful only for tin coating of recessed and irregularly shaped objects, is now being considered favorably for all types of work. Bulletin Ox-29.

Mo-W High Speed

In a four-page folder, The Cleveland Twist Drill Co. announces the development of a new steel for high speed metal-cutting tools. Mo-Max steels are particularly suited to tools subjected to severe conditions of heat and abrasion. Physical characteristics and heat treating temperatures are discussed. Bulletin Ox-103.

Forging Control

The rigid metallurgical control exercised in the forge shops of National Forge and Ordnance Co. is illustrated by picture and text in an interesting folder. Bulletin Sy-136.

Metaliput

A new inverted universal microscope designated the "Metaliput" is described in a leaflet by Carl Zeiss, Inc. It can be used for bright and darkfield metallography and macrography and is convertible for use with transmitted light. Bulletin Sy-28.

18-8 Fabrication

A booklet on the improved fabrication of 18-8 chromium-nickel steels is an eight-page illustrated discussion of improvements in technique and materials of welding, published by The Linde Air Products Co. Bulletin Sy-63.

Modern Controls

In view of the present trend toward modernization in industry, Brown Instrument Co. points out the important part played by temperature measurement and control instruments in facilitating operation of efficient equipment for oil refining, steel treatment, chemical, textile, ceramics and other industrial processes. Bulletin Sy-3.

Specialized Tester

The Rockwell superficial hardness tester is a specialized instrument for use where the indentation into the work must be kept shallow or of small area, yet sensitivity preserved. A supplement to Wilson Mechanical Instrument Co.'s catalog on the regular Rockwell tester tells all about it. Bulletin Sy-22.

Lower Production Costs

The use of cold drawing may often eliminate costly production methods. Union Drawn Steel Co. has a folder illustrating exact size some of the thousands of special sections they produce, finished in bars ready to be cut to proper lengths. Bulletin Sy-83.

Micro Equipment

A 38-page illustrated catalog describes photographic equipment made by Bausch & Lomb Optical Co. The various types of microscopes, cameras and accessories are fully covered, with price list and specifications included. Bulletin Sy-35.

Stabilog

The principles, operating details and methods of application of the Stabilog potentiometer control pyrometer are described in comprehensive fashion in a bulletin recently published by The Foxboro Co. Related equipment for automatic temperature control is also covered. Bulletin Sy-21.

Nickel Publications

International Nickel Co. has a list of 62 publications on nickel and its alloys which they will supply free of charge. An order blank is attached to the list to facilitate ordering those publications of interest to you. Bulletin Sy-45.

Pot Furnaces

The new features of American Gas Furnace Co.'s improved pot hardening furnaces include insulating refractory lining backed by block insulation, heat resisting alloy burners, single valve control, numerous small burners with their attendant advantages, burner location and method of venting. Fully described in Bulletin Sy-11.

New Recorder

C. J. Tagliabue Mfg. Co. announces for the first time in a new edition of their pyrometer catalog a new two- and three-position recorder-controller. The complete Tag line of indicating, recording, and controlling pyrometers, which utilize a beam of light, a mirror galvanometer and a phototube, is also described. Bulletin Ay-62.

Flexible Tubing

Seamless flexible metal tubing is made without seams, joints, laps, welds, or packing of any kind by American Metal Hose Branch of American Brass Co. An extensive catalog gives facts and data on construction, advantages and applications, typical installations, and specifications. Bulletin Myb-89.

Stainless Steel Uses

The wide range of applications of Allegheny Metal, best known of Allegheny Steel Co.'s corrosion and heat resistant steels, is pictorially covered in a new and interesting booklet. Bulletin Ob-92.

Truck Bodies

Use of aluminum for truck body construction results in lightweight and lowered operating costs. Aluminum Co. of America has issued a catalog listing the various types of alloys for this purpose and containing tables and diagrams showing the shapes and sizes of sheet and plate and structural and extruded shapes that are available. Bulletin Ay-54.

Global Elements

Global electrical heating units and a variety of accessories for their operation have been catalogued by Global Division of Carborundum Co. Bulletin Oy-25.

Free Literature

Silver Solder

The results of both laboratory and actual production data are contained in a booklet by Handy & Harman which includes detailed instructions and two pages of hints on the subject of soldering and brazing with silver alloys. Bulletin Ay-126.

Metal Analyst

Volume 1, 1936, suggests application of newer methods to the daily routine for the metallurgist. Adolph I. Buehler describes Bakelite specimen mountings, new type cutting machine, low cost grinders and polishers and an offer of scratch free polishing cloth. Bulletin Ay-135.

Vanadium Facts

Revived after nearly 20 years is the house organ of Vanadium Corp. of America, "Vanadium Facts." This paper shows considerable thought and care in its preparation and contains valuable and interesting information on vanadium steels. Bulletin Ox-27.

Degreasing

An eye-taking cover leads one to read the inside of a folder by Detroit Rex Products Co. telling why modern equipment and solvents make degreasing and cleaning an efficient and inexpensive operation. Bulletin Mya-111.

Forging Machines

The Acme Machinery Co. has published an interesting bulletin on a distinctly new forging machine—the Model 35 Acme. This booklet illustrates and fully describes the new Acme Eccentric Header Slide which eliminates entirely the conventional Pitman construction. Bulletin Ox-39.

Drop Forgings

An attractive and comprehensive book on drop forgings has just been published by the Drop Forging Association. The book deals with the characteristics, qualities and uses of drop forgings and is a valuable addition to the library of any one interested in this subject. Bulletin Aya-123.

Air-Clutch Forging

Two bulletins are offered by Ajax Mfg. Co. One tells about their air-clutch forging machines in 2 to 7 in. sizes, made according to the most advanced design. The second is concerned with the Ajax-Hogue wire drawer, an attachment for heading machines which presents new economies. Bulletin Ox-105.

Conveyor Furnaces

Continuous chain belt conveyor furnaces handle miscellaneous parts without pans or trays—they are efficient, uniform, and flexible in operation. Improved furnaces of this type are described by Electric Furnace Co. Bulletin Aya-30.

No-Contact Control

A book which should be in the hands of every man interested in temperature reading and control is the Data Book published by Wheelco Instruments Co., which describes a line of indicating and controlling pyrometers with Wheelco no-contact system of control. Bulletin Dx-110.

Bench Type Furnace

American Electric Furnace Co. has a new bulletin describing their new bench-type electric furnace for low cost, high speed hardening. It can be used for all types of high speed steel. Bulletin Jya-2.

Silico-Manganese Steel

Silico-manganese steel for heavy springs is the subject of Bethlehem Steel Co.'s new folder giving its properties and recommendations for heat treatment. Bulletin Jyx-76.

Moly Cast Iron

The use of molybdenum in foundry practice, both on steel and cast iron, is described in a handsome booklet by Climax Molybdenum Co., which presents accurate technical information in a striking and modern manner. Bulletin Jyc-4.

Spoilage Insurance

C. I. Hayes, Inc., has compiled a record of reports from over 300 users of their "Certain Curtain" controlled atmosphere furnaces showing how these furnaces have cut down spoilage in the heat treatment of tools. Bulletin Sx-15.

Blast Cleaning

So many changes have taken place in blast cleaning and dust collecting equipment in the past three years that Pangborn Corporation's "quick reference" catalog of condensed information will be invaluable to all those interested in this subject. Bulletin Jyc-68.

Heat Treating Manual

A folder of Chicago Flexible Shaft Co. contains conveniently arranged information on heat treating equipment for schools, laboratories and shops, and also illustrates the several types of Stewart industrial furnaces. Bulletin Ar-49.

Recuperators

Results obtained with Carborundum Company's recuperators using Carboflex tubes are fuel savings, closer temperature control, faster heating, and improved furnace atmosphere. Complete engineering data are given in Bulletin Fx-57.

Resistance Wire

A complete catalog of the various types of electric resistance wires made by Hoskins Mfg. Co. has been issued. Complete numerical data are included on all types, along with some fundamental facts about heating units. A handy, small size, 48-page booklet. Bulletin Jyb-24.

Stainless Data Book

All users of stainless and heat resisting alloys should find invaluable the information contained in a booklet published by Maurath, Inc., giving complete analyses of the alloys produced by the different manufacturers, along with the proper electrodes for welding each of them. Bulletin Jyb-125.

Coated Electrodes

General information on welding with coated electrodes is supplemented by complete descriptive data on all brands of electrodes manufactured by Metal & Thermit Corp. in a revised edition of their catalog. Bulletin Jyb-64.

Heroult Furnace

A complete exposition of the Heroult electric furnace is carried through in logical style in an exceedingly handsome illustrated booklet by American Bridge Co. Salient features, types, sizes and capacities, suggestions for installation, auxiliary equipment and practical advantages are given. Bulletin Jyb-124.

Steel Handbook

A handbook has been prepared by Heppenshall Co. covering the effects of alloying elements and the physical properties of steel in forged sections. Such valuable data as heat treating definitions, McQuaid-Ehn grain size classification, hardness conversion tables, and physical property tables are included. Bulletin Jyb-122.

Newer Tool Steels

Vulcan Crucible Steel Co. has a complete and attractive catalog listing their full line of tool steels including many special types to meet the modern trends in industry. Bulletin Jyb-127.

Welding Enduro

An invaluable textbook for every manufacturer making articles of stainless steel is a new publication by Republic Steel Corp. on the fabrication of all sorts of stainless steel products by welding. Bulletin Jyb-8.

Heat Treating Baths

An attractive booklet outlines the types and uses of heat treating baths made by A. F. Holden Co. Possible savings in the entire range of hardening room requirements are indicated. Bulletin Myb-55.

Furnace Control

How the Lindberg Control functions in balancing the rate of heating of a furnace or oven with the varying heat requirements is told in an attractive new bulletin issued by Lindberg Engineering Co. Bulletin Myb-66.

Centrifugal Castings

Centrifugal casting of stainless, heat and corrosion resisting alloys eliminates impurities and cooling strains and permits thinner and more uniform walls than any other method. This is explained in a bulletin by Michigan Steel Casting Co. Bulletin Nx-84.

Convected Air Furnace

A novel application of the principle of mechanical convection to transfer heat uniformly around and through parts being heat treated is provided by a patented rotary fan. This equipment is incorporated in the convected air tempering furnaces described by Despatch Oven Co. in Bulletin Myb-123.

Corrugated Ingots

The Gathmann Engineering Co. has published a new booklet called "Gathmann Ingot Molds—Their Purpose and Design." It illustrates various corrugated ingot contours designed to produce defect-free surface in steel ingots. Bulletin Aya-13.

Burners and Valves

Auxiliary equipment for industrial furnaces that will insure proper heat production and correct combustion, such as oil and gas burners, blowers, regulating and shut-off valves, is fully described in Mahr Mfg. Co.'s illustrated booklet. Bulletin Jyx-5.

Nickel-Copper Steels

Exceptional resistance to corrosion and abrasion, increased tensile strength, and higher ductility are the qualities claimed for Youngstown Sheet & Tube Co.'s new series of Yoley steels. A summary of properties and notes on their characteristics are contained in Bulletin Ox-93.

Tool Steel Catalog

A new catalog lists and describes the complete line of tool steels manufactured by Columbia Tool Steel Co. Bulletin Mya-115.

Turbo Compressors

The new items in Spencer Turbine Co.'s bulletin are a new and smaller "Midjet" turbo for individual mounting, a single-stage line which effects new economies, and the gas-tight turbos for acid and explosive gases. Bulletin Mx-70.

Heat Resisting Alloys

Authoritative information on alloy castings, especially the chromium-nickel and straight chromium alloys manufactured by General Alloys Co. to resist corrosion and high temperatures, is contained in Bulletin D-17.

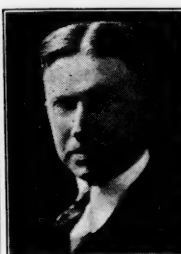
Ni-Cr Castings

Compositions, properties, and uses of the high nickel-chromium castings made by The Electro Alloys Co. for heat, corrosion and abrasion resistance are concisely stated in a handy illustrated booklet. Bulletin Fx-32.

Metal Congress Hosts



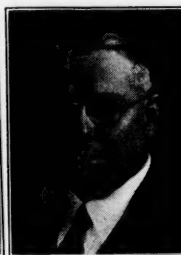
A. M. Thurston



H. P. Croft



G. T. Williams



H. E. Brown

Members of the Cleveland Chapter of the A.S.M. will act as hosts during the National Metal Congress in Cleveland the week of October 19.

A Convention Committee was appointed by the Chapter consisting of Allen M. Thurston, chairman; Harry P. Croft, Chapter chairman; Gordon T. Williams, Chapter vice-chairman; Hugh E. Brown, Chapter secretary; and Ray T. Bayless, Ed Burke, Ed Pierce, John Tyson, Frank Wood, E. K. Streeter, Harrison I. Dixon, James Kelley, Arlington P. Ford, and Merle Fox.

The Cleveland Chapter will have charge of the A.S.M. booth at the National Metal Exposition and two members will be on duty continuously during the hours of the Show.

The Committee will also take care of plant inspection trips and entertainment such as golfing. Members will be equipped with badges and will be glad to be of any service possible to out-of-town guests.

Liquid Carburizing

E. F. Houghton's Perlitol liquid carburizer is the subject of a 23-page booklet. Depth of case, speed of penetration, and other results are well illustrated with graphs and photomicrographs. Bulletin Nv-38.

Testing with Monotron

Shore Instrument & Mfg. Co. offers a new bulletin on Monotron hardness testing machines which function quickly and accurately under all conditions of practice. Bulletin Je-33.

Compressors

B. F. Sturtevant Co. has a line of centrifugal compressors designed particularly for industrial furnace applications. These are illustrated and described in Bulletin Myx-58.

Descaling

Complete facts on the Bullard-Dunn process for electro-chemical descaling of metals are available in concise blueprint form. Bullard-Dunn Process Division of The Bullard Company, Bridgeport, Conn. Bulletin Oy-143.

Stainless Casting

An attractive new piece of literature describing Cooper stainless castings (thin section) and other casting alloys has just been published by the Cooper Alloy Foundry Company, Elizabeth, N. J. Bulletin Oy-144.

Catalog Bronze

An attractive bulletin is available giving interesting details regarding Catalog Bronze. Scientific Alloys, Inc. circulates it. Bulletin Oy-146.

The Review,
7016 Euclid Ave., Cleveland

Please have sent to me without charge or obligation the following literature described in the September issue. Please order by number only. It is important to write in your company or business connection when you return this coupon.

Name	Title
Company
Company Address
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Historical Diorama Will Feature A. S. M. Exhibit At Cleveland Metal Expo

An animated diorama depicting the ancient method of smelting iron will feature this year's exhibit of the American Society for Metals at the National Metal Show.

The diorama will vividly picture the old iron masters placing charcoal in a crucible with crushed iron ore mixed with unslaked lime—will show the fire being stimulated by the blast of the bellows—the slag being drawn off—the iron beaten to remove remaining slag—and finally hammered on an anvil and cut into five or six billets.

It is planned to make this the first of a series of dioramas which will eventually present a unified picture of historical highlights in metal progress.

The Cleveland Chapter of the A.S.M. is cooperating with the National Office to present and man this year's exhibit. Ideally located at the entrance to the Metal Show, in Booth P-7, members of the Cleveland Chapter will be on hand each day to welcome visitors and to help them with information regarding daily activities at the Show.

Acetylene Group to Meet

The International Acetylene Association will hold its Thirty-Seventh Annual Convention in St. Louis at the Jefferson Hotel, Nov. 18, 19 and 20.

Technical sessions will be held each afternoon and two evenings, featuring the oxy-acetylene process for welding and cutting metals. Wednesday evening, Nov. 18, is to be devoted to a forum on welding and cutting. The evening session on Thursday is intended to comprise a series of popular round-table discussions on oxy-acetylene welding and cutting practices.

A cordial invitation to attend this Convention is extended to everyone interested in the practical application of the oxy-acetylene process.

Tocco Process

This amazing new and extremely accurate method of heat treating is described in a new four-page leaflet, yours for the asking. Distributed by Ohio Crankshaft Co. Bulletin Oy-145.

Testing Machines

An extremely handsome, spiral-bound, segregated catalog tells all about the various hydraulic and screw power testing machines made by Tinius Olsen Testing Machine Co. Bulletin Oy-147.

Aerocase

A modern method for case hardening and heat treating steel in a liquid bath is provided by the use of Aerocase compounds, which have been in commercial use for more than six years. Their principal features are described by American Cyanamid and Chemical Corp. in an interesting booklet. Bulletin Oy-148.

Hard Facing

The Stoddy Company house organ, "Fusion Facts," contains helpful information on all kinds of hard facing. A copy of it will be sent along with a recently published booklet describing the new line of Stoddy metals on request for Bulletin Oy-149.

Polishing Machine

A reprint of an article from the A.S.M. Transactions by O. E. Romig and J. C. Whetzel is supplemented by photographs, specifications, and other information on the Cincinnati Electrical Tool Co.'s new metallographic polishing machine. Bulletin Ox-97.

Symposium Planned

A.S.M. Schedules Many Events During Week of Metal Congress

(Continued from page 1)

men who will preside at the technical sessions scheduled for that day and with Ray T. Bayless, assistant secretary of the American Society for Metals.

A new feature of the Congress this year will be a group of alumni luncheons on Wednesday noon following the Campbell Lecture. These will be sponsored by University of Michigan, Case School of Applied Science, Lehigh University, Carnegie Institute of Technology, and Missouri School of Mines and Metallurgy.

Detailed information concerning the Annual Banquet of the Society, scheduled for Thursday at 7:00 p. m., the entertainment planned for the ladies during the convention week, and the program of plant inspection trips, will be found on page 3.

Adjustable Port Valves

Control Flow of Fuels

Adjustable port valves made by North American Mfg. Co., Cleveland, are recommended wherever the amount of flow of a medium is to be adjusted to suit some definite conditions, and wherever the rate of flow of that medium is to be changed intermittently or continuously, either by automatic or hand operation.

North American control valves have external adjustment features, called "port adjusting screws," which allow the operator to raise or lower a "slide" and to obtain any desired port opening, thus matching the size of the port with the size of the opening from which the fluid issues.

They are ideally suited for controlling the input of either gaseous or liquid fuels, together with the required combustion air, into industrial furnaces.

New Controller Announced

Simplicity of Tagliabue Pyrometer Due To Photo-Electric Balance

The C. J. Tagliabue Mfg. Co. of Brooklyn, N. Y., has recently announced a new two- and three-position recording controlling pyrometer.

The extreme simplicity of this instrument is the result of the exclusive "Tag" photo-electric balancing method. Control is accomplished by movement of the recording carriage with its ink stylus above or below the control contact assembly. Two of the many exclusive features of this pyrometer are its control action, independent of the chart drive, and its inherent protection against power failure.

This instrument embodies all the other modern refinements that are found in the complete line of Tag potentiometer pyrometers. They are completely described in the Tag Pyrometer Catalog No. 1101B which will be sent on request.

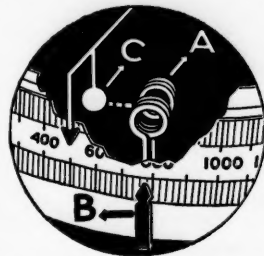
Sentry Has New Model "Y"

A new Model "Y" furnace known as No. 2, which is larger than the No. 1 furnace introduced about a year ago, is now being produced by the Sentry Co.

Like its smaller predecessor, size No. 2 is a muffle furnace with four heating elements, two above and two below. It employs air-cooled terminals, and heating elements give well over 1000 hours' service.

The furnace is designed especially for the Sentry diamond block method of atmospheric control, which produces tools of the maximum hardness and cutting performance.

Wheelco Instruments Use Radio Principle



New improvements in the line, and several new items of temperature control and indicating instruments will be shown at the National Metal Exposition in Cleveland by the Wheelco Instruments Co., Chicago.

The Wheelco system of no-contact control provides a simple means for efficient temperature control. The radio principle upon which the Wheelco Flame-otrol, Limitrol and Capacitrol are based is the simple application of a radio circuit using one vacuum tube.

This tube generates a rapidly oscillating electric current similar to radio waves. The current flows through a pair of coils A, which are mounted on a lever whose pointer B may be set upon the temperature scale. Upon the temperature indicating pointer is cemented a tiny disk C of aluminum foil, so positioned that a movement of the pointer will cause it to enter the minute current through which the oscillating current is flowing without actual contact.

The entrance of this disk between the coils causes a change in the frequency and current drain of the radio tube. The current change in the tube is then used to operate the relay control in the furnace input.

Notre Dame University Adds to Teaching Staff

The continued growth of interest in the metallurgical field and the notable increase in enrollment in the department of metallurgy at the University of Notre Dame have made necessary an addition to the teaching staff.

Dr. Carl F. Floe comes to the department from Washington State College, where he has been teaching metallurgy for several years. He takes the position of assistant professor of metallurgy, in charge of non-ferrous courses.

Dr. Floe is a graduate of Massachusetts Institute of Technology, where he received the degree of Doctor of Science in 1935.

ROLLING OFF THE PRESSES

— First copies of the outstanding metallurgical reference book of all time—the new METALS HANDBOOK—are rolling off the presses this week. Next week thousands of copies will be on their way into industry to answer the metal man's questions on manufacture, treatment and use of metals.

Will a copy come your way? This edition will be larger, more attractive, completely revised. Its up-to-the-minute metallurgical information, its extensively enlarged Non-Ferrous division, and its new Welding section make it an essential engineering tool.

Why not order a copy today, enclosing check or money order in the amount of \$10.00 to cover. (If you are an ASM member, the return of your obsolete 1933 Edition entitles you to a new Handbook, free-of-charge.) 1540 Pages, 6" x 9", Red Cloth Cover.

METALS HANDBOOK

American Society for Metals
7016 Euclid Avenue, Cleveland, Ohio

Detroit Rex Adds New Solvent Degreaser to Cleaning Machine Line

A new two-dip solvent degreasing machine, designated as size 624, has recently been added to the line of Detrex Degreasers manufactured by Detroit Rex Products Co., 13005 Hillview Ave., Detroit.

Among the important features of this machine are a water jacket type of condenser completely encircling the machine, and a solvent condensate collecting trough located directly beneath the condenser. By this arrangement, the solvent vapors are held within the machine and all of the pure solvent distillate is emptied directly into the second or rinse chamber, thus continuously renewing the rinse with pure solvent.

This machine is used for both immersion and vapor cleaning, and the complete cycle of cleaning operations is accomplished in less than a minute. The work is removed clean and dry with every trace of oil and grease removed.

Protective Coating Material Prevents Carbon Penetration

K-Seal, a product of the Lindberg Engineering Co. laboratory, offers important advantages in steel treating operations where it is necessary to limit carburizing to certain areas.

K-Seal is supplied in the form of a powder and a liquid which are mixed in definite proportions as used. This protective coating will entirely prevent the penetration of carbon in the carburizing treatment.

It adheres firmly to the steel surface, so that very sharp boundaries can be obtained between the areas of full penetration and the painted surfaces which show a total absence of carbon.

New Cutting Machine

Light Section Material Is Rapidly Cut With New Equipment

A new, semi-automatic metal cutting machine for use on any light-section material which can be cut with metal cutting saw blades is now being manufactured by DeWalt Products Corp. at Lancaster, Pa.

After material is manually started into the feed jaws, it is automatically pushed against a length stop, clamped simultaneously on both sides of the saw kerf by a four-jaw automatic vise, and then cut off. The saw then draws back, the stop lifts, the stock feed mechanism pushes another section of the material into the vise, displacing the stock cut off, and the process is repeated.

This machine will cut off light-wall tubing 2 in. in diameter and 6 in. long, for instance, at the rate of 28 cuts per min., averaging a little more than 2 sec. per cut.

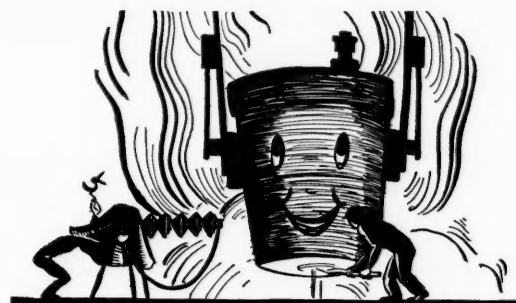
It can be seen in operation at Booth L-35 at the National Metal Exposition in Cleveland. It is also completely described in a new catalog now ready for distribution.

Patents Taken on Refractories

Two patents covering an important advance in refractories have recently been allowed to J. M. Knot, chief technologist, Quigley Co., 56 West 45th St., New York, and assigned to that Company.

No. 2,051,003 covers a new chromemagnesite refractory for brick and monolithic furnace linings. It can be used as a substitute for the older types of chrome or magnesite brick or to replace silica, silicon carbide and fire-clay refractories.

No. 2,051,002 is a chromite-dolomite refractory for furnace linings.



Story Without Words

Metal men will see a Pictorial Story of Steel in the Making in their November Issues of *Metal Progress*. It will be the Second of a series. First was the popular, widely-reprinted July Story of Drop Forging, with photographs by Candid Camera-man Van Fisher, captions by Time's Myron Weiss.

They are together again in this November Issue to take the 8500 readers of *Metal Progress* on a pictorial tour of Timken's modern alloy steel mill. Swift-moving camera will etch the epic of alloy steel—from scrap-yard to hundred-ton furnace, from ladle to ingot mold to soaking pit... will show how fine alloy steels are made... the equipment, the materials they are made with... the master metal men who make them.

Editorial and advertising pages of this Pictorial Story will appear as an India Tint insert in November. Advertising forms close October 26. If you supply steel mill equipment... if you sell steel, refractories, ingot tops or molds, pyrometers, furnaces or ferro-alloys—be sure to be represented in an issue that will make your sales task so much easier. Wire collect today for full details.

METAL PROGRESS

7016 EUCLID AVENUE

CLEVELAND, OHIO

HERE AND THERE WITH A.S.M. MEMBERS

H. B. PULSIFER, known to most Cleveland A.S.M. members as "Harry," has been made director of the research laboratory, Cleveland district, American Steel and Wire Co.

Best known perhaps for his contributions to technical literature and activities during the past eight years in his position as metallurgist for Ferry Cap and Set Screw Co., Mr. Pulsifer nevertheless has an extensive teaching experience behind him at such places as Armour Institute of Technology, Montana State School of Mines, and Lehigh University. He himself is a graduate of M.I.T. with Ch.E. and M.S. degrees from Armour Institute and University of Chicago, respectively.

Harry was chairman of the Cleveland Chapter last season and is now on the Executive Committee.

J. FLETCHER HARPER has terminated an association of over 20 years with Allis-Chalmers Mfg. Co. to become associated with Globe-Union Mfg. Co., Milwaukee.

Long, lean and likable, "Fletch" was a director of the American Steel Treating Society in 1919-20 and president of the American Society for Steel Treating in 1926 (both predecessors of the American Society for Metals). He has also served as chairman of the Recommended Practice Committee from its inception until 1926.

Educated at University of Wisconsin, he worked his way up in the Allis-Chalmers plant through the heat treating department and forge shop to the position of research engineer.

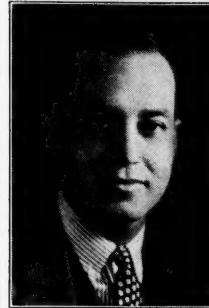
SUCCESSING Mr. Harper in the position of research engineer of the manufacturing department, Allis-Chalmers Mfg. Co., Milwaukee, is **HAROLD J. STEIN**, a charter member of the A.S.M. and also active in committee work.

Mr. Stein has been assistant research engineer under Mr. Harper since 1928. He joined the firm in 1916 and has been successively foreman of the tractor heat treating department, general foreman in the heat treating department and in the forge department, and assistant superintendent of the forge department. He has been co-author with Mr. Harper of a number of papers on forging and heat treating subjects.

CARL B. REX, who helped organize the Peoria Chapter of the Society in the fall of 1934 and served for two years as chapter secretary-treasurer, has resigned from Caterpillar Tractor Co. and is now in the metallurgical department of Jones & Laughlin Steel Corp., Aliquippa, Pa.



H. J. Stein

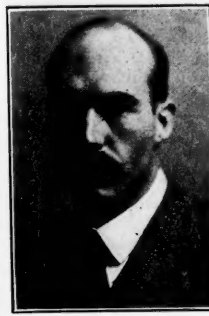


R. S. Rose

Harold J. Stein (Upper Left) Succeeds J. Fletcher Harper (Upper Right) as Research Engineer for Allis-Chalmers Mfg. Co. Mr. Harper has become associated with Globe-Union Mfg. Co. Robert S. Rose has been transferred to Boston by Vanadium-Alloys Steel Co. H. B. Pulsifer (center) is director of the American Steel & Wire Co. Cleveland Laboratory, and S. E. Sjogren (right) has been made Detroit sales manager for Columbia Tool Steel Co.



H. B. Pulsifer



J. F. Harper



S. E. Sjogren

BERNARD R. QUENEAU, faithful reporter of North West Chapter meetings for THE REVIEW, received his Ph.D. from University of Minnesota in June. He is now associated with the research laboratories of United States Steel Corp. in Kearny, N. J.

BACK to the States in time to attend the National Metal Congress starting Oct. 19 will come **GEORGE B. WATERHOUSE**, metallurgy professor at M.I.T. and vice-president-elect of the A.S.M. He has been traveling abroad since the latter part of August, visiting England, France, and Germany.

Friends and colleagues expect Dr. Waterhouse to have something to tell about the meetings of the Institute of Metals in Paris and the Iron and Steel Institute in Duesseldorf.

FRANCES HURD CLARK, who keeps REVIEW readers informed of what goes on at New York Chapter meetings, was married on June 27 to Robert L. Dietzold. Miss Clark holds a D.Sc. degree from Massachusetts Institute of Technology and is metallurgist for Western Union Telegraph Co.

ROBERT S. ROSE, chairman of the Springfield Chapter of the Society in 1934-35 and 1935-36, has been transferred from Springfield to Boston as sales representative for Vanadium-Alloys Steel Co. and Colonial Steel Co.

METALLURGICAL activities of **SAMUEL EPSTEIN** first came to the attention of A.S.M. members and *Transactions* readers some years ago when he was with the Division of Metallurgy of the National Bureau of Standards. Since then he has been a member of the research staff of Illinois Steel Corp. and research metallurgist at Battelle Memorial Institute. He has now joined the research and development department of Bethlehem Steel Corp.

NOT wasted from an A.S.M. standpoint was **A. H. D'ARCAMBAL**'s recent visit to California. During his trip he addressed the September meetings of both the Los Angeles and San Francisco Chapters. Mr. d'Arcambal is consulting metallurgist for Pratt & Whitney Division, and a past-president of the Society.

NEW representative of the Columbia Tool Steel Co.'s sustaining membership in the Detroit Chapter is **S. E. SJOGREN**, who has been appointed district sales manager in the Detroit territory to fill the vacancy caused by the death of Alexander Luttrell. Mr. Sjogren will have headquarters at 1718 Howard St., Detroit.

Mr. Sjogren has been associated with Mr. Luttrell at Columbia since 1927. He was previously employed by Chevrolet Motor Co. and Cadillac Motor Car Co. At one time he served a full-time die maker's apprenticeship with Ireland and Mathews in Detroit.

THE Weldon Tool Co., 321 Frankfort Ave., Cleveland, manufacturers of milling cutters, announces the appointment of **ELMER B. HAUSER** as research metallurgist.

Mr. Hauser is a graduate of Case School of Applied Science. For 11 years he was metallurgist of the National Tool Co., Cleveland, and also spent several years in the metallurgical laboratories of Bourne-Fuller Co. (now a division of Republic Steel Corp.).

H. P. MUNGER, who has a B.S. in chemical engineering from Georgia Tech, an M.A. from Columbia University, and a Ph.D. in chemistry from University of Pittsburgh, is now metallurgist in the research department of Republic Steel Corp., Warren Works.

His previous position, from 1929 to 1936, was as metallurgist in the research laboratories of American Rolling Mill Co., Middletown, Ohio. Before that he was an industrial fellow at the Mellon Institute in Pittsburgh.

Dr. Munger was elected treasurer of the Dayton Chapter, A.S.M., in the spring, a position he has now resigned.

HARRY L. CAMPBELL, who has been at the University of Michigan for the past 15 years, is now employed as metallurgical engineer at the American Hoist and Derrick Co., St. Paul, Minn.

Professor Campbell has given a large amount of attention to research work on foundry core practice, molding sands, and cupola operation, and has presented a number of papers before the American Foundrymen's Association. His most recent work is a book entitled "Metal Castings" published by John Wiley and Sons, New York.

ALEXANDER LUTTRELL, district sales manager of the Columbia Tool Steel Co. in Detroit, died suddenly on July 18. Mr. Luttrell, a member of the Detroit Chapter, had been with Columbia Tool Steel Co. for 23 years.

Joint Meeting of Three A.S.M. Chapters Offers Many Events on All-Day Program

Plant Visits, Movie on Alloy Steel and Speeches by Davis and Archer Attract Large Attendance to Sessions in Cincinnati

By Kurt Siems

The combined meeting of the Columbus, Dayton, and Cincinnati Chapters, an annual event, was held this year on April 21 in the Hotel Alms, Cincinnati, Ohio. Total attendance was about 150.

Plant visitations were scheduled in the morning to Remington-Rand, Inc., Procter & Gamble, Crosley Radio Corp., Cincinnati Milling Machine Co., Andrews Steel Mills, Newport Rolling Mills, and the Metal Specialties Co.

Editor's Note: This report, although sent in by the reporter shortly after the meeting, was unfortunately mislaid in the printing office and has therefore been delayed until this issue.

After the luncheon, attended by 88 members and visitors, the afternoon technical session got under way with E. F. Davis, chief metallurgist, Warner Gear Co., Muncie, Ind., delivering a lecture on "Modern Gears." The metallurgist's problems were thoroughly covered by Mr. Davis; his lecture also included details on recent developments in quiet running gears.

A lengthy discussion, led by N. M. Salkover, technical chairman for the afternoon, followed his talk.

The next feature was the Bethlehem Steel Co.'s sound film entitled "The Manufacture of Alloy Steels." An at-

tendance of approximately 140 people was recorded and may it be said that none of them went away disappointed. The film surpassed all expectations in excellence of narration and clearness as well as subject matter. The making of alloy steel from beginning to the finish was shown in detail.

Just before the evening dinner three door prizes were awarded. A. R. Stevenson of Republic Steel Corp., Massillon, won a Crosley Fiver as first prize, E. B. Allrecht of Irvin Auger Bit Co., New Haven, Conn., won one of the latest design floor lamps, and Wilson Kinsey of Ludlum Steel Co., Cincinnati, was given a \$5.00 book order good for any one of the books published by the Society.

After dinner George M. Enos of University of Cincinnati, acting as toastmaster, introduced various state and national officers of the American Society for Metals and the Coal Division, Ohio Section, American Institute of Mining and Metallurgical Engineers, who had joined in most of the activities

of the day. They spoke briefly on matters pertaining to each society.

The lecture of the evening, "The Place of Research in Industry," was delivered by R. S. Archer, national president of the A.S.M. He spoke in detail on the value of research departments and illustrated by example the need of such departments to further the progress of companies both large and small. He also showed how such work has often broadened the viewpoint of individuals to such an extent that new methods and new ideas are brought forth, accidentally in a good many cases, which have contributed much to the progress of industry.

Wanted

One used Charpy or Izod impact testing machine. Must be in good condition. Address Box 9-1.

American Society for Metals
7016 Euclid Ave. Cleveland, O.

List of Firms Exhibiting at National Metal Exposition

- Acme Steel Co.,** Booth M-9. Colored cold rolled strip steel.
- Aetna Gases, Inc.,** Booth N-46. Gases.
- Air Reduction Sales Co.,** Booth G-7. Welding and cutting torches, brazing and hard facing apparatus.
- Ajax Electric Co.,** Booth B-2. Electric heat treating furnaces.
- Ajax Electrothermic Corp.,** Booth A-3. High frequency furnaces.
- Allegheny Steel Co.,** Booth C-22. Stainless steels, sheets, bars, plates, strip, tubing, wire, rivets.
- Edgar Allen Steel Co., Inc.,** Booth D-22. Tool and die steels.
- Aluminum Co. of America,** Booth I-23. Aluminum alloys.
- American Brass Co.,** Booth C-21. Copper alloys.
- American Bridge Co.,** Booth C-15. (See United States Steel Corp.)
- American Car & Foundry Co.,** Booth E-32. Electric bar heaters, forging heaters, rivet heaters.
- American Crucible Co.,** Booth O-15 (one half). Crucibles and retorts, graphite products.
- American Cyanamid & Chemical Corp.,** Booth N-47. Case hardening compounds, chemicals.
- American Electric Furnace Co.,** Booth I-4. Electric furnaces.
- American Foundry Equipment Co.,** Booth M-48. Cleaning and descaling equipment.
- American Gas Association,** Industrial Gas Section. Industrial gas equipment.
- American Gas Furnace Co.,** Industrial Gas Section. Heat treating furnaces.
- American Institute of Mining & Metallurgical Engineers,** Booth P-19. Educational exhibit.
- American Machine & Foundry Co.,** Booth M-47. Machinery, cast parts.
- American Machine & Metals Mfg. Co.,** Booth B-19. Hardness testing machines.
- American Machinist,** Booth N-53. Publications.
- American Metal Market,** Booth L-47 (left half). Publications.
- American Rolling Mill Co.,** Booth L-59. Stainless steels, enameling iron, sheets and plates.
- American Sheet & Tin Plate Co.,** Booth C-15. (See United States Steel Corp.)
- American Society for Metals,** Booth P-7. Educational exhibit.
- American Steel & Wire Co.,** Booth C-15. (See United States Steel Corp.)
- American Welding Society,** Booth N-60. Educational Exhibit.
- Ampco Metal, Inc.,** Booth A-19. High strength non-ferrous alloys.
- Anderson & Sons,** Booth N-51 (west half). Etched and lithographed metal products.
- Armstrong-Blum Mfg. Co.,** Booth P-28. Metal sawing machines, hacksaws, tapping machines.
- Armstrong Cork Co.,** Booth L-11. Insulating materials.
- Automatic Temperature Control Co., Inc.,** Booth L-9. Temperature control systems, control valves for air, gas, water, oil and steam.
- Automotive Industries,** Booth O-10. Publications.
- Babcock & Wilcox Co.,** Booth N-18. Refractories.
- Baldwin-Southwark Corp.,** Booth P-15. Testing machines.
- Bastian Blessing Co.,** Booth L-19. Oxy-acetylene welding and cutting equipment.
- Bausch & Lomb Optical Co.,** Booth D-23. Optical instruments for metallography and spectrography.
- Bell & Gossett Co.,** Booth G-23. Case hardening compounds, heat treating supplies.
- Bethlehem Steel Co.,** Booth F-15. Carbon and alloy steels.
- G. S. Blakeslee & Co.,** Booth L-51. Cleaning and degreasing machines.
- Bliss & Laughlin, Inc.,** Booth F-20. Cold finished bar steels.
- Botfield Refractories Co.,** Booth N-49. Refractories.
- Bristol Co.,** Booth L-15. Pyrometers, temperature control equipment.
- Brown Instrument Co.,** Booth N-22. Indicating and recording instruments, automatic control equipment.
- A. I. Buehler,** Booth N-10. Metallographic equipment.
- Bullard Dunn Process Div., The Bullard Co.,** Booth M-54. Cleaning and descaling equipment.
- Burdett Mfg. Co.,** Industrial Gas Section. Gas burning equipment.
- Calorizing Co.,** Booth L-18. Heat resisting alloys and equipment.
- Carboloy Company, Inc.,** Booth A-20. Cemented carbide tools.
- Carborundum Co.,** Booth O-38. Abrasives, grinding and cutting wheels, refractory products.
- Carnegie-Illinois Steel Corp.,** Booth C-15. (See United States Steel Corp.)
- Case Hardening Service Co.,** Booth G-23. Carburizing compounds, heat treating materials.
- Chapman Valve Mfg. Co.,** Booth O-18. Chapmanizing equipment, steel valves.
- Chemical Rubber Co.,** Booth M-51. Laboratory equipment.
- Chilton Co.,** Booths O-10 and O-48. Publications.
- Climax Molybdenum Co.,** Booth F-3. Molybdenum steels and irons.
- Colmonoy Co.,** Booth N-46. Hard facing materials, cutting tools.
- Columbia Steel Co.,** Booth C-15. (See United States Steel Corp.)
- Columbia Tool Steel Co.,** Booth H-32. High speed and tool steels.
- Continental Industrial Engineers, Inc.,** Industrial Gas Section. Heat treating systems.
- Continental Machine Specialties, Inc.,** Booth P-11. Precision filing and sawing equipment.
- Crown Rheostat & Supply Co.,** Booth L-46. Plating and polishing equipment.
- Cyclops Fence Co.,** Booth C-15. (See United States Steel Corp.)
- Cyclops Steel Co.,** Booth G-32. Tool steels, stainless and specialty steels.
- Dayton Rogers Mfg. Co.,** Booth E-3. Metal stampings.
- A. P. De Sanno & Son,** Booth L-5. Abrasive cutting equipment.
- Despatch Oven Co.,** Industrial Gas Section. Gas heat treating furnaces.
- Detroit Testing Machine Co.,** Booth N-54. Physical testing apparatus.
- De Walt Products Corp.,** Booth L-53. Metal cutting machines.
- Joseph Dixon Crucible Co.,** Booth I-24. Stoppers, nozzles and sleeves.
- Dow Chemical Co.,** Booth C-27. Magnesium alloy die castings, forgings, rolled sheet and plate, and extruded sections.
- Driver-Harris Co.,** Booth G-21. Heat and corrosion resisting alloys.
- E. I. du Pont de Nemours & Co.,** Booth C-32. Heat treating salts; sodium; plating chemicals; metal cleaners.
- Eclipse Fuel Engineering Co.,** Industrial Gas Section. Heat treating furnaces and equipment.
- Electric Furnace Co.,** Booth L-21. Heat treating furnaces.
- Electro-Alloys Co.,** Booth M-6. Heat and corrosion resisting alloys.
- Electro Metallurgical Co.,** Booth O-30. Alloy steels and cast irons.
- Elevator Supplies Co.,** Booth O-9. Wire drawing machines.
- Ensign-Reynolds, Inc.,** Industrial Gas Section. Soft metal melting furnaces, soldering furnaces, burners, gas compressors, air blowers.
- Firth Sterling Steel Co.,** Booth D-32. Carbide tools, stainless steel products, wear resistant parts.
- J. B. Ford Sales Co.,** Booth H-22. Metal cleaners, burnishing compounds.
- C. A. Fox,** Booth H-2 (one half). Abrasive cut-off machines.
- Foxboro Co.,** Booth L-1. Measurement and control instruments.
- Fulton Foundry & Machine Co.,** Booth O-33. Meehanite metal, high strength gray iron.
- Gas Machinery Co.,** Industrial Gas Section. Forging furnaces.
- Gas Products Co.,** Booth M-44. Acetylene, oxygen, gases.
- Gathmann Engineering Co.,** Booth C-6. Ingot molds.
- General Alloys Co.,** Booth P-8. Heat and corrosion resisting alloys, furnace parts.
- General Electric Co.,** Booth E-23. Electric furnaces, electric welding machines.
- General Electric X-Ray Corp.,** Booth E-21. X-ray testing equipment.
- Globar Corp.,** Booth O-36. High temperature heating elements.
- Gogan Machine Co.,** Booth N-9. Hardness testing machines.
- Claud S. Gordon Co.,** Booth B-18. Pyrometers and accessories.
- Grasselli Chemical Co., Inc.,** Booth E-33. Pickling inhibitors, fluxes, acids, chemicals for plating.
- Great Lakes Steel Corp.,** Booth P-16. Sheet and strip steel, alloy steel.
- Grob Brothers,** Booth E-2. Die making equipment, saws, filing machines, brazing devices.
- Hamilton Steel Co.,** Booth P-23. Steels.
- Handy & Harman,** Booth D-27. Brazing alloys and silver solders.
- Hardinge Brothers,** Booth L-14. Machine tools.
- Harnischfeger Corp.,** Booth L-54. Electric welding equipment and motors.
- Hauck Manufacturing Co.,** Booth N-5. Oil and gas burners, regulating valves.
- C. I. Hayes, Inc.,** Booth G-15. Heat treating furnaces.
- Haynes-Stellite Co.,** Booth O-30. Cutting tools, corrosion resistant castings.
- Heat Treating & Forging,** Booth N-13. Business papers.
- Hevi Duty Electric Co.,** Booth G-25. Electric heat treating equipment.
- Hobart Brothers Co.,** Booth B-15. Electric arc welding equipment.
- A. F. Holden Co.,** Booth M-18. Heat treating baths.
- Hollup Corp.,** Booth A-15. Electric arc welders, electrodes and equipment.
- Charles A. Hones, Inc.,** Industrial Gas Section. Gas oven furnaces, melting furnaces, soft metal and soldering furnaces, industrial gas burners.
- Hoskins Mfg. Co.,** Booth M-59. Heating element alloys.
- E. F. Houghton & Co.,** Booth I-8. Carburizing compounds; heat treating salts; industrial lubricants; cutting oils; leather belting and packings.
- Illinois Testing Laboratories, Inc.,** Booth N-26. Pyrometers; thermometers; meters.
- Industry & Welding,** Booth P-24. Publications.
- Industrial Press,** Booth O-21. Publications.
- Ingersoll-Rand Co.,** Booth N-45. Blowers and compressors.
- International Nickel Co., Inc.,** Booth B-7. Nickel and nickel alloys.
- Iron Age,** Booth O-48. Publications.
- Iron & Steel Publishing Co.,** Booth O-34. Publications.
- C. O. Jelliff Mfg. Co.,** Booth N-11. Resistance wire, heat resisting alloys.
- Johns-Manville Co.,** Booth N-38. Insulating and refractory materials.
- Jones & Laughlin Steel Corp.,** Booth E-15. Hot and cold rolled steel, tinplate.
- J. W. Kelley Co.,** Booth H-16. Heat treating products, industrial oils.
- Kelley-Koett Mfg. Co., Inc.,** Booth A-18. X-ray apparatus.
- C. M. Kemp Mfg. Co.,** Industrial Gas Section. Gas producers and premixers.
- G. N. Krouse,** Booth Q-20. Fatigue testing machines.
- Lakeside Steel Improvement Co.,** Booth O-22. General heat treating.
- La Salle Steel Co.,** Booth N-50. Steels.
- Leeds & Northrup Co.,** Booth I-15. Heat treating furnaces, pyrometers and controlling instruments.
- E. Leitz, Inc.,** Booth H-14. Photomicrographic apparatus.
- Lewis Machine Co.,** Booth L-10. Wire drawing machines.
- Lincoln Electric Co.,** Booth F-23. Electric welding equipment and welding supplies.
- Lindberg Engineering Co.,** Booth L-33. Heat treating equipment.
- Linde Air Products Co.,** Booth O-30. Welding and cutting apparatus, welding gases.
- Machinery,** Booth O-21. Publications.
- MacKlin Co.,** Booth C-26. Grinding wheels; cut-off machines.
- Magnaflux Corp.,** Booth N-15. Inspection method and equipment.
- Magnetic Analysis Corp.,** Booth D-4. Magnetic analysis equipment.
- Mahr Mfg. Co.,** Booth N-44. Oil and gas furnaces; burners.
- P. R. Mallory & Co.,** Booth H-26. Welding metals.
- Manhattan Rubber Mfg. Co.,** Booth H-2. Abrasive cut-off wheels, finishing wheels.
- John A. Manning Paper Co., Inc.,** Booth M-1. Rope papers, insulation, specialty papers.
- Marburg Brothers, Inc.,** Booth L-50. Cutting tools, gages, pneumatic hammers.
- Metal Industry,** Booth N-59. Publications.
- Metal & Thermit Corp.,** Booth H-27. Welding electrodes and equipment.
- Metals & Alloys,** Booth B-2. Publications.
- Michiana Products Corp.,** Booth N-14. Heat and corrosion resistant alloy castings.
- Michigan Steel Casting Co.,** Booth I-14. Heat and corrosion resisting castings.
- Midvale Co.,** Booth B-14. Carbon and alloy steels.
- A. Milne & Co.,** Booth D-22. Tool and die steels.
- Minneapolis-Honeywell Regulator Co.,** (See Brown Instrument Co.)
- Modern Machine Shop,** Booth M-14. Magazines.
- Molybdenum Corp. of America,** Booth O-24. Molybdenum and tungsten alloys.
- Monarch Steel Corp.,** Booth M-55. Cold drawn steels and shafting.
- Morse Magneto Clock Co.,** Booth O-47. Time clocks.
- Mullite Refractories Co.,** Booth O-15. Refractories.
- National Cylinder Gas Co.,** Booth M-44. Oxy-acetylene cutting machines.
- National Industrial Publishing Co.,** Booth O-27. Publications.
- National Tube Co.,** Booth C-15. Tubing.
- New Jersey Zinc Co.,** Booth D-21. Zinc alloys; die castings.
- Nickel & Chromium Products Co.,** Booth L-23. Plating equipment.
- North American Mfg. Co.,** Industrial Gas Section and M-45. Industrial gas burning equipment.
- Norton Co.,** Booths Q-12 and Q-16. Grinding wheels, refractories.
- Ohio Crankshaft Co.,** Booths A-5, A-9, and B-4. Automatically hardened crankshafts.
- Tinius Olsen Testing Machine Co.,** Booth B-8. Testing machines.
- Oster Manufacturing Co.,** Booth D-2. Jigs and fixtures for welding, torch cutting machines, pipe and bolt threading machines.
- Page Steel & Wire Division, American Chain Co., Inc.,** Booth C-23. Welding wire, miscellaneous wire.
- Pangborn Corp.,** Booth P-27. Blast cleaning and dust collecting equipment.
- Park Chemical Co.,** Booth M-11. Heat treating materials, buffing and polishing materials.

(Continued on page 11)

Canvass Chapter By Post Card to Decide Program

Taking the cue from times of political experiment, the Program and Educational Committees of the New York Chapter have given further trial to democracy!

This was accomplished by canvassing the membership to determine what is wanted in the way of technical papers and educational lectures. The instrument was a return postal card; the details of its important side included the following questionnaire:

REGULAR MEETINGS

Field		Metal	
Production	[]	Carbon Steel	[]
Fabrication	[]	Alloy Steel	[]
Testing	[]	Cast Steel	[]
Research	[]	Cast Iron	[]
Applications	[]	Non-ferrous	[]
	[]	(Which Metal?).....	[]

EDUCATIONAL COURSE

	Ferrous	Non-ferrous
Metallography	[]	[]
Heat-Treatment	[]	[]
Melting	[]	[]
Hot & Cold Working	[]	[]
Testing	[]	[]
Welding	[]	[]
Preferred Non-ferrous Metal	[]	[]

The response fully justified the experiment, with approximately 50% of the cards returned. On the assumption that these cards represented fairly the complexion of the active membership, and on the basis of expressed desires, programs of both activities were planned for the coming season.

Both committees are certain that their programs will have wider appeal than would have been the case had they indulged in the haphazard crystal-gazing method of planning.

Appointed Metal Progress Eastern Representative

Chester L. Wells has been appointed Eastern Representative of *Metal Progress*, the popular



C. L. Wells

Prior to 1934 he had been in the executive sales department of Hotels Statler Co., Inc. for 14 years.

Handbook Survives Flood

First National Metals Handbook to reach the A.S.M. office to be exchanged for a new edition was a mud-covered, swollen, warped and distorted object.

A survival of the Pittsburgh flood last March, it was sent in by E. R. Carr, Jr., research metallurgist of Crucible Steel Co. of America, who has good reason to be eager for his new book.

Carborundum Acquires Globar

The Carborundum Co. has purchased the Globar Corp. in its entirety, and the latter organization will hereafter be known as "The Carborundum Co., Globar Division."

The name "Globar" is well known throughout the metal industry as the registered trade name given to non-metallic electrical heating and resistance materials.

Suggestions Solicited

Names of Sauveur Medal Candidates Should Be Sent to A.S.M.

Members of the American Society for Metals are invited to suggest names for the recipient of the Albert Sauveur Achievement Medal to be awarded on Oct. 20 during the National Metal Congress.

A nominating committee consisting of the past presidents of the Society will make the final decision. All suggestions should be sent to A. E. White, University of Michigan, Ann Arbor, Mich., who has been appointed chairman of the committee by President Archer.

Excerpts from the rules for awarding the medal are given below:

"The purpose of this award is to recognize a metallurgical achievement which has stimulated other organized work along similar lines to such an extent that a marked basic advance has been made in metallurgical knowledge. . . . This medal shall be given only after the pioneering work has been proven by time to have conformed to the purposes for which the award is made. . . ."

"As an aid in making nominations the Nominating Committee, and particularly the President, may canvass the executive committee of local chapters for written endorsements for consideration by the Nominating Committee. The Nominating Committee shall also give consideration to written endorsements forwarded by individual members or representatives of members of the Society to the Nominating Committee for its consideration. Endorsements of a local executive committee shall be confined to members of its local chapter or representatives of firms or corporations which are members of its local chapter, but an individual member or representative of a member of the Society may suggest any qualified member or representative of members of the Society for consideration by the Nominating Committee."

Canadian A.S.M. Chapters To Hold Special Luncheon

The Montreal and Ontario Chapters of the A.S.M. are staging a "Canadian Luncheon" during the National Metal Congress in Cleveland. It will be held at the Statler Hotel on Tuesday, Oct. 20.

An invitation to attend is extended to all who are in any way interested. There will be no planned program and no speeches—just an impromptu luncheon for former and present Canadians and their friends to renew old acquaintances and make new ones.

Advance reservations should be made with either Miss B. W. Brownrigg, recording secretary, Montreal Chapter, P. O. Box 371, Station "H," Montreal, or with L. F. Fitzpatrick, secretary, Ontario Chapter, 321 Weston Rd. South, Toronto.

Reservations will also be taken on Monday and Tuesday, Oct. 19 and 20, at the registration desk of the Statler Hotel.

Golfing Privileges Granted

For the convenience of those who want to take time off from convention activities during National Metal Week, five country clubs in Cleveland and vicinity have granted golfing privileges to the members of the A.S.M. Names of clubs, green fees, and taxi rates from the Statler will be found in the official Program.

EXHIBITORS AT METAL SHOW

(Continued from page 10)

Parker-Kalon Corp., Booth I-26. Screws and fastening devices, measuring instruments, gage blocks.

Partlow Corp., Industrial Gas Section. Temperature controls, gas valves, safety pilots.

Henry Pels & Co., Booth Q-24. Cutting and fabricating machines.

Philadelphia Drying Machinery Co., Booth M-46. Heating furnaces, oil burners, gas burners.

Pittsburgh Instrument & Machine Co., Booth G-34. Brinell hardness testing machines.

Product Engineering, Booth N-53. Publications.

Products Finishing, Booth M-14. Publications.

Production Machine Co., Booth Q-23. Polishing, finishing and buffing machines.

Pyrometer Service & Supply Co., Booth B-18. Pyrometers and accessories.

Quigley Co., Inc., Booth L-37. Refractories.

Republic Steel Corp., Booth E-6. Alloy and stainless steels, sheets, bolts and nuts, pig iron, etc.

John A. Roebing's Sons Co., Booth O-12. Wire rope and miscellaneous wire.

Rustless Iron & Steel Corp., Booth L-43. Rustless or stainless steels.

Joseph T. Ryerson & Son, Inc., Booth I-22. Steel and allied products.

The Safety Gas Lighter Co., Booth I-33. Gas lighters, gas ranges, hot water heaters.

Salem Engineering Co., Booth M-10. Furnaces.

George Scherr Co., Inc., Booth D-26. Optical instruments and testing machines.

Scully Steel Products Co., Booth C-15. (See United States Steel Corp.)

Selas Co., Industrial Gas Section. Gas premixers, burners, soldering systems.

Sentry Co., Booth O-25. Hardening furnaces, high temperature tube furnaces.

Spencer Turbine Co., Booth N-34. Turbo compressors, vacuum cleaners.

Steel, Booth Q-4. Publications.

Steel City Testing Laboratory, Booth M-5. Testing machines.

Stoody Co., Booth N-8. Hard facing materials, cutting tools.

D. A. Stuart & Co., Booth L-25. Industrial oils and greases.

Surface Combustion Corp., Industrial Gas Section. Heat treating furnaces, burners, accessories.

Syncro Machine Co., Booth N-1. Wire machinery.

C. J. Tagliabue Mfg. Co., Booth M-15. Indicating, recording and controlling pyrometers.

Tennessee Coal, Iron & Railroad Co., Booth C-15. (See United States Steel Corp.)

Timken Steel & Tube Co., Booth F-33. Alloy steels.

Titanium Alloy Mfg. Co., Booth M-50. Titanium alloys and compounds.

Una Welding, Inc., Booth H-23. Arc welding machines.

Union Carbide Co., Booth O-30. Welding and cutting equipment, ferro-alloys, heat and corrosion resisting alloys.

United States Steel Corp., Booth C-15. Alloy steels, high tensile and stainless steels.

Universal Steel Co., Booth G-32. Tool steels, stainless and specialty steels.

Vanadium Alloys Steel Co., Booth Q-28. Vanadium steel; tool steels.

Vanadium Corp. of America, Booth G-2. Vanadium alloys and compounds.

Victor Saw Works, Inc., Booth F-2. Hack saw blades and machines.

Welding Engineer Publishing Co., Booth M-49. Publications.

Weldit Acetylene Co., Booth M-16. Welding equipment.

Wells Manufacturing Corp., Booth I-2. Metal cutting saws.

Wheelco Instruments Co., Booth I-32. Temperature control instruments.

Wheelock, Lovejoy & Co., Inc., Booth H-21. Alloy steels.

Williams & Co., Booth O-30. Nickel, aluminum, brass and copper, welding electrodes and machines.

Wilson Mechanical Instrument Co., Booth C-25. Rockwell hardness testers.

Wilson Welder & Metals, Inc., Booth G-7. Electric welding machines.

Wire Association, Booth N-3. Educational exhibit.

Youngstown Sheet & Tube Co., Booth E-24. Alloy steels.

Carl Zeiss, Inc., Booth C-33. Microscopes and accessories.

Employment Service Bureau

Address answers care of A. S. M., 7016 Euclid Ave., Cleveland, unless otherwise stated

POSITIONS WANTED

METALLURGIST: B.S. in Chem. Eng., M.S. in Eng. University of Michigan; 20 years in charge of chemical and metallurgical laboratory and heat treating department of a prominent cutting tool manufacturer. Desires metallurgical position with progressive organization. Box 9-5.

GRADUATE METALLURGIST (1931), having a sound, basic metallurgical knowledge, now employed, desires a research or plant production position having a future. Experience largely non-ferrous. Box 9-10.

METALLURGIST, TESTING or research engineer: Age 29. Five years' experience in physical metallurgy, metallography, material testing, including fatigue at temperatures from +70° F. to -50° F., metal inspection, and design of special testing machine equipment. Some experience in heat treating. University graduate, M.S. degree. Now employed on nearly completed investigation. Available on or before Jan. 1, 1937. Box 9-15.

METALLURGICAL ENGINEER: M.S. from University of Michigan; 11 years' experience in heat treating, physical and general metallurgy, sales service. Any location considered. Available on short notice. Box 9-20.

ANALYST: Chemical engineering graduate from University of Michigan with extensive experience in analysis of iron and steel, non-ferrous metals and a wide variety of other materials, would like position in gray iron foundry laboratory or automobile plant laboratory. Box 9-25.

METALLURGIST with considerable experience in heat treating, investigational work on complaints, and investigational research, desires to take charge in a plant in the Cleveland vicinity dealing with heat treating problems. Box 9-30.

POSITIONS OPEN

TWO STEEL SALESMEN: Wanted by large company in tool and alloy steel field. Must have knowledge of Detroit district. Box 9-45.

YOUNG ENGINEERING GRADUATE not over 28 years old, with some industrial process and sales experience, for sales promotion work. One who has also studied university courses in economics, marketing and advertising preferred. Must be free to spend at least one year as sales and service engineer in various parts of the country, in preparation for work in sales promotion department of manufacturer of instruments and control equipment. Work will include planning, writing and laying out direct-by-mail pieces, data sheets, sales manuals and catalogs. Write describing education and experience, stating age and salary desired. Box 9-50.

OLD ESTABLISHED Sheffield steel firm requires the services of a salesman, with good knowledge, heat treatment application tool steels. Territory: New York State and Pennsylvania. State age, references and salary. Box 9-55.

METALLURGICAL ENGINEERING Graduate 25 to 35 years old with plant experience in automobile industry and metal manufacturing plants to train for work of sales engineer for well-known manufacturer of recording instruments and automatic control equipment. Must have outstanding personality and highest character references and be free for extensive travel and quick transfers. Candidates preferred who also have successful experience in sales solicitation. Write describing education and experience and stating age and salary desired. Box 9-60.

GRADUATE METALLURGIST: For steel mill in middle west. Must have thorough knowledge of carbon and alloy bar steels—their manufacture, application and heat treatment. For metallurgical field service. Personality for this type of work, as well as technical knowledge and experience, essential. State full details of experience, age, salary, etc. All replies confidential. Box 9-65.

MANUFACTURER'S REPRESENTATIVE: Well established manufacturer of electric furnaces and industrial heating equipment seeks commission representatives for several exclusive territories now open. Must have thorough knowledge of industrial heat treating applications. Can interview applicants at National Metal Congress, Cleveland. Write at once to Box 9-70.

Technical Programs of Five Societies at Congress

The Wire Association

(Continued from page 5)

Wednesday, Oct. 21

9:30 a. m.—Hotel Cleveland

Chairman—R. S. Simmons, General Metallurgist, Keystone Steel & Wire Co.
RESEARCH AS APPLIED TO MANUFACTURING, by C. W. Meyers, American Steel & Wire Co.
DEVELOPMENT AND STANDARDIZATION OF TYPES OF MILITARY EQUIPMENT, by Frank W. Bullock, United States Army.
SIGNAL COMMUNICATIONS WITHIN THE INFANTRY REGIMENT, Sound Motion Picture.

2:00 p. m.—Hotel Cleveland

Chairman—Lewis H. Winkler, Metallurgical Engineer, Bethlehem Steel Co.
PLASTIC DEFORMATION IN WIRE DRAWING, by B. L. McCarthy, Wickwire Spencer Steel Co.

7:00 p. m.—The Mayfair Casino

Informal Dinner
Award of The Wire Association Medal.

Thursday, Oct. 22

9:30 a. m.—Hotel Cleveland

Chairman—Waldo L. Sherman, Secretary, John Robertson Co., Inc.
ENDURANCE TESTS ON ELECTROLYTIC TOUGH PITCH AND OXYGEN-FREE COPPER WIRE, by J. N. Kenyon, Columbia University.
VACUUM LEAD SHEATH AS APPLIED TO POWER CABLE, by R. W. Atkinson, General Cable Corp.
POWER FOR CASCADE DRAWING OF COPPER, by Paul M. Mueller, Revere Copper & Brass, Inc.
THE TACTICAL EMPLOYMENT OF THE ANTI-AIRCRAFT ARTILLERY REGIMENT, Sound Motion Picture.

2:00 p. m.—Hotel Cleveland

Chairman—Kenneth B. Lewis, Consulting Wire Mill Engineer.
TUNGSTEN CARBIDE, by A. R. Zapp, Firth Sterling Steel Corp.
A SUGGESTED METHOD OF HANDLING TUNGSTEN CARBIDE DIES WITHIN THE DIE ROOM, by K. R. Beardslee, Carboly Co., Inc.

American Welding Society

The Welding Practice Symposium Oct. 22 to 23 Is Held Jointly With American Society of Mechanical Engineers

Monday, Oct. 19

9:45 a. m.—Hotel Cleveland Ball Room

Business Session

Report on Society Activities, by J. J. Crowe.
Teller's Report on Election of Officers.
Award of Samuel Wylie Miller Memorial Medal.
Review of Committee and Section Activities by Chairman.

2:00 p. m.—Hotel Cleveland Ball Room

Chairman—A. E. Gibson, The Wellman Engineering Co.
Vice-Chairman—E. Vom Steeg, General Electric Co.
Welcome address by local official.
FUNDAMENTALS OF METALLURGY OF WELDING, by E. S. Davenport and R. H. Aborn, United States Steel Corp.
MULTI-LAYER OXY-ACETYLENE PIPE WELDING, by R. M. Rooke, F. C. Saacke and A. N. Kugler, Air Reduction Sales Co.
High speed motion pictures of various welding processes, by E. Vom Steeg, General Electric Co., W. E. Crawford and Walter Richter, A. O. Smith Corp.

6:30 p. m.—Hotel Cleveland Parlor
Dinner and Meeting, Board of Directors

Tuesday, Oct. 20

9:45 a. m.—Hotel Cleveland Ball Room

Fundamental Research in Welding

Chairman—H. M. Boylston, Case School of Applied Science.
Vice-Chairman—E. R. Fish, The Hartford Steam Boiler Inspection & Insurance Co.
HEATING BY THE PROXIMITY EFFECT, by Edward Bennett, University of Wisconsin.
NON-DESTRUCTIVE TESTING OF WELDS, by W. B. Kouwenhoven, Johns Hopkins University.
IMPACT TESTS OF WELDS AT LOW TEMPERATURES, by Otto Henry, Brooklyn Polytechnic Institute.

2:00 p. m.—Hotel Cleveland Ball Room

Fundamental Research in Welding

Chairman—H. W. Gillett, Battelle Memorial Institute.
Vice-Chairman—R. E. Kinkead, Consulting Engineer.
CHARACTERISTICS OF A UNIVERSAL WELDING GENERATOR, by N. F. Ward, University of California.
WELDED BEAM-COLUMN CONNECTIONS, by Inge Lyse, Fritz Engineering Laboratory, Lehigh University.
CIRCUIT CHARACTERISTICS AND ARC STABILITY, by S. C. Osborne, Wilson Welder and Metals Co., Inc.
WELDED STRUCTURAL BRACKETS, by C. D. Jensen, Lehigh University.

7:30 p. m.—Hotel Cleveland

Conference and Meeting of Fundamental Research Committee, Bureau of Welding Research and Engineering Foundation
Chairman—H. M. Hobart, General Electric Co.

Wednesday, Oct. 21

9:45 a. m.—Hotel Cleveland Ball Room

Chairman—A. F. Davis, The Lincoln Electric Co.
Vice-Chairman—C. A. McCune, Magnaflex Corp.
BRAZING WITH SILVER SOLDER, by R. H. Leach, Handy & Harman, Inc.
IMPORTANCE OF DESIGN CONTROL FOR WELDED PIPING SYSTEMS, by T. W. Greene, The Linde Air Products Co.
PRINCIPLES OF SURFACING BY WELDING, by E. W. P. Smith, The Lincoln Electric Co.
TECHNIQUE FOR RESISTANCE WELDING FERROUS AND NON-FERROUS SHEET METALS, by E. I. Larsen, P. R. Mallory & Co.

2:00 p. m.—Hotel Cleveland Ball Room

Chairman—Hugh H. Dyar, The Linde Air Products Co.
Vice-Chairman—J. B. Tinnon, Metal and Thermit Corp.
PROCEDURES FOR CONTROL OF WELDING PARTS, by G. H. Moore, Jr., Newport News Shipbuilding and Dry Dock Co.
WELDING COPPER AND ITS ALLOYS—A REVIEW OF THE LITERATURE, by Ira T. Hook, American Brass Co.
RESISTANCE WELDING OF DISSIMILAR METALS, by R. T. Gillette, General Electric Co.
THERMIT WELDING, by J. H. Deppeler, Metal & Thermit Corp.
AN EXPLORATION OF A MODERN METALLIC ARC, by L. J. Larson, A. O. Smith Corp.

Thursday, Oct. 22

9:45 a. m.—Hotel Cleveland Ball Room

Welding Practice Symposium

Chairman—C. W. Obert, Union Carbide & Carbon Research Laboratories
Vice-Chairman—Milton Male, United States Steel Corp.
WELDING DESIGN, by C. H. Jennings, Westinghouse Electric & Mfg. Co.
ALLOY STEELS AND THEIR WELDABILITY, by A. B. Kinzel, Union Carbide and Carbon Research Laboratories.
WELDING OF ALLOY STEELS, by W. L. Warner, Watertown Arsenal.
2:00 p. m.—Hotel Cleveland Ball Room
Welding Practice Symposium
Chairman—H. F. Henriques, Air Reduction Sales Co.
Vice-Chairman—S. M. Weckstein, Timken Roller Bearing Co.
ROLLED STEEL IN MACHINE CONSTRUCTION, by H. G. Marsh, Carnegie Steel Co.
WELDING HEAVY MACHINERY AND EQUIPMENT, by C. A. Wills and F. L. Lindemuth, Wm. B. Pollock Co.
Discussions by E. E. Tross, United Engineering & Foundry Co., and F. O. Leitzell, Lewis Foundry & Machinery Co.
MODERN RESISTANCE WELDING DEVELOPMENTS, by A. E. Hackett, Thompson-Gibb Electric Welding Co.

7:00 p. m.—Hotel Cleveland

Dinner Dance with Entertainment

Friday, Oct. 23

9:30 a. m.—Hotel Cleveland Ball Room

Welding Practice Symposium

Chairman—A. E. Gibson, Wellman Engineering Corp.
Vice-Chairman—Guy Hubbard, Penton Publishing Co.
APPLICATION OF COPPER ALLOY WELDING, by I. T. Hook, American Brass Co.
WELDING OF MONEL METAL AND PURE NICKEL, by F. A. Flocke, International Nickel Co.
WELDING THE ALUMINUM ALLOYS, by G. O. Hoglund, Aluminum Co. of America.

2:00 p. m.—Hotel Cleveland

Welding Practice Symposium

Chairman—R. E. W. Harrison, Machine Shop Practice Division A.S.M.E.
Vice-Chairman—D. M. Gurney, Warner & Swasey Co.
MAGNAFLUX INSPECTION OF LARGE WELDED VESSELS.
RADIOGRAPHIC INSPECTION OF WELDED REFINERY EQUIPMENT AND STEEL PLATE CONSTRUCTION, by H. R. Isenburger, St. John X-Ray Service.
PRINCIPLES INVOLVED IN SELECTING CASTING VS. WELDING, by J. L. Brown, Industrial Motor Department, Westinghouse Electric & Mfg. Co.

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